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NATURAL TRIGONOMETRIC FUNCTIONS

**WORKS OF
HOWARD CHAPIN IVES, C.E.**

**PUBLISHED BY
JOHN WILEY & SONS, Inc.**

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NATURAL TRIGONOMETRIC FUNCTIONS
TO
SEVEN DECIMAL PLACES
FOR
EVERY TEN SECONDS OF ARC

TOGETHER WITH
MISCELLANEOUS TABLES

BY
HOWARD CHAPIN IVES, C.E.
CONSULTING ENGINEER

NEW YORK
JOHN WILEY & SONS, INC.
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1931

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BOSTON

PREFACE

This book is divided into two parts: The first gives 270 pages of the seven place natural sines, cosines, tangents and cotangents to ten seconds together with proportional parts to seconds. The second part consists of a variety of miscellaneous tables, information and examples especially adapted to subdivision work. The result is that a large amount of material previously scattered or not available is made accessible.

Much thought was spent on selection and arrangement of the material. Several specimen pages were set up before a final selection was made.

In the case of cotangents which change rapidly, the differences in some cases appear to change irregularly. This is due to the fact that all quantities are given to the nearest place and were checked by fifteen place tables.

The original manuscript was twice checked. The pages when set in type were proof read four times and by three different persons. It is confidently believed that the book is unusually accurate.

Thanks are due: Mr. Herbert E. Hayes, C. E. who checked the entire manuscript and who also gave valuable suggestions and advice; Mr. Alfred B. Osborne, C. E. Industrial Engineer for Larkin Co., Inc., Buffalo, N. Y., who read the entire proof besides giving expert advice; and to the publishers, compositors, printers and binders who have spared no thought, time or expense in the endeavor.

H. C. I.

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0° 0'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
0	0	0.000 0000		1.000 0000		0.000 0000		Infinite		0	60	
	10	0485	485	0000	0	0485	485	20 626.481	Infinite	50		
	20	0970	485	0000	0	0970	485	10 313.240	10 313.241	40		
	30	1454	484	0000	0	1454	484	6 875.4935	3 437.7465	30		
	40	1939	485	0000	0	1939	485	5 156.6201	1 718.8734	20		
	50	2424	485	0000	0	2424	485	4 125.2960	1 031.3241	10		
			485		0		485		687 5493			
1	0	0.000 2909		1.000 0000		0.000 2909		3 437.7487		0	59	
	10	3394	485	9999	1	3394	485	2 946.6400	491.1067	50		
	20	3879	485	9999	0	3879	485	2 578.3099	368 3301	40		
	30	4363	484	9999	0	4363	484	2 291.8310	286.4789	30		
	40	4848	485	9999	0	4848	485	2 062.6479	229 1831	20		
	50	5333	485	9999	1	5333	485	1 875.1344	187.5135	10		
			485		1		485		156 2612			
2	0	0.000 5818		0.999 9998		0.000 5818		1 718.8732		0	58	
	10	6303	485	9998	0	6303	485	1 586.6521	132 2211	50		
	20	6787	484	9998	0	6787	484	1 473.3198	113.3323	40		
	30	7272	485	9997	0	7272	485	1 375.0985	98 2213	30		
	40	7757	485	9997	0	7757	485	1 289.1548	85 9437	20		
	50	8242	485	9997	1	8242	485	1 213.3221	75 8327	10		
			485		1		485		67 4068			
3	0	0.000 8727		0.999 9996		0.000 8727		1 145.9153		0	57	
	10	9211	484	9996	0	9211	484	1 085.6039	60.3114	50		
	20	9696	485	9995	1	9696	485	1 031.3237	54 2802	40		
	30	0.001 0181	485	9995	0	0.001 0181	485	982.2 1302	49 1 1068	30		
	40	0666	485	9994	1	0666	485	937.5 6695	44 6 4607	20		
	50	1151	485	9994	1	1151	485	896.8 0313	40.7 6382	10		
			485		1		485		37 3 6683			
4	0	0.001 1636		0.999 9993		0.001 1636		859.4 3630		0	56	
	10	2120	484	9993	0	2120	484	825.0 5882	34 3 7748	50		
	20	2605	485	9992	1	2605	485	793.3 2576	31 7 3306	40		
	30	3090	485	9991	1	3090	485	763.9 4329	29 3 8247	30		
	40	3575	485	9991	0	3575	485	736.6 5957	27 2 8372	20		
	50	4060	485	9990	1	4060	485	711.2 5748	25 4 0209	10		
			484		1		484		23 7 0861			
5	0	0.001 4544		0.999 9989		0.001 4544		687.5 4887		0	55	
	10	5029	485	9989	0	5029	485	665.3 6984	22 1 7903	50		
	20	5514	485	9988	1	5514	485	644 5 7700	20 7 9284	40		
	30	5999	485	9987	1	5999	485	625.0 4433	19 5 3267	30		
	40	6484	484	9986	1	6484	484	606.6 6065	18 3 8368	20		
	50	6968	485	9986	0	6968	484	589.3 2745	17 3 3320	10		
			485		1		485		16 3 7024			
6	0	0.001 7453		0.999 9985		0.001 7453		572.9 5721		0	54	
	10	7938	485	9984	1	7938	485	557.4 7185	15 4 8536	50		
	20	8423	485	9983	1	8423	485	542.8 0151	14 6 7034	40		
	30	8908	485	9982	1	8908	485	528.8 8349	13 9 1802	30		
	40	9393	485	9981	1	9393	485	515.6 6137	13 2 2212	20		
	50	9877	484	9980	1	9877	484	503.0 8423	12 5 7714	10		
			485		1		485		11.9 7823			
7	0	0.002 0362		0.999 9979		0.002 0362		491.1 0600		0	53	
	10	0847	485	9978	1	0847	485	479.6 8490	11.4 2110	50		
	20	1332	485	9977	1	1332	485	468.7 8294	10 9 0196	40		
	30	1817	485	9976	1	1817	485	458.3 6551	10 4 1743	30		
	40	2301	484	9975	1	2301	484	448.4 0101	9 9 6450	20		
	50	2786	485	9974	1	2786	485	438.8 6053	9 5 4048	10		
			485		1		485		9 1 4296			
8	0	0.002 3271		0.999 9973		0.002 3271		429.7 1757		0	52	
	10	3756	485	9972	1	3756	485	420.9 4779	8 7 6978	50		
	20	4241	485	9971	1	4241	485	412.5 2880	8 4 1899	40		
	30	4725	484	9969	2	4726	485	404.4 3997	8 0 8883	30		
	40	5210	485	9968	1	5210	484	396.6 6225	7.7 7772	20		
	50	5695	485	9967	1	5695	485	389.1 7802	7 4 8423	10		
			485		1		485		7.2 0703			
9	0	0.002 6180		0.999 9966		0.002 6180		381.9 7099		0	51	
	10	6665	485	9964	2	6665	485	375.0 2603	6 9 4496	50		
	20	7150	485	9963	1	7150	485	368.3 2911	6 6 9692	40		
	30	7634	484	9962	1	7634	484	361.8 6716	6 4 6195	30		
	40	8119	485	9960	2	8119	485	355.6 2804	6 2 3912	20		
	50	8604	485	9959	1	8604	485	349.6 0041	6 0 2763	10		
			485		1		485		5.8 2670			
10	0	0.002 9089		0.999 9958		0.002 9089		343.7 7371		0	50	
		Cosine	Diff.	Sine	Diff.	Cotangent	Diff.	Tangent	Diff.	"	'	Proportional Parts

89° 50'

0° 10'

	"	Sine	Diff.	Cosine	Diff.	Tangent	Diff.	Cotangent	Diff.			Proportional Parts
10	0	0.002 9089	485	0.999 9958	2	0.002 9089	485	343.773 71	5.635 67	0	50	
	10	9574	485	9956	1	9574	485	338.138 04	5.453 87	50		
	20	0.003 0058	484	9955	2	0.003 0059	484	332.684 17	5.280 73	40		
	30	0543	485	9953	1	0543	485	327.403 44	5.115 71	30		
	40	1028	485	9952	2	1028	485	322.287 73	4.958 31	20		
	50	1513	485	9950	1	1513	485	317.329 42	4.808 05	10		
11	0	0.003 1998	484	0.999 9949	2	0.003 1998	485	312.521 37	4.664 53	0	49	
	10	2482	485	9947	1	2483	484	307.856 84	4.527 34	50		
	20	2967	485	9946	2	2967	485	303.329 50	4.396 11	40		
	30	3452	485	9944	2	3452	485	298.933 39	4.270 51	30		
	40	3937	485	9942	1	3937	485	294.662 88	4.150 22	20		
	50	4422	485	9941	2	4422	485	290.512 66	4.034 93	10		
12	0	0.003 4907	484	0.999 9939	2	0.003 4907	485	286.477 73	3.924 38	0	48	
	10	5391	485	9937	1	5392	484	282.553 35	3.818 32	50		
	20	5876	485	9936	2	5876	485	278.735 03	3.716 50	40		Sine
	30	6361	485	9934	2	6361	485	275.018 53	3.618 70	30		484
	40	6846	485	9932	2	6846	485	271.399 83	3.524 70	20		1 48 4
	50	7331	484	9930	2	7331	485	267.875 13	3.434 33	10		2 98 8
13	0	0.003 7815	485	0.999 9928	1	0.003 7815	484	264.440 80	3.347 38	0	47	3 145 2
	10	8300	485	9927	2	8300	485	261.093 42	3.263 71	50		4 193 6
	20	8785	485	9925	2	8785	485	257.829 71	3.183 11	40		5 242 0
	30	9270	485	9923	2	9270	485	254.646 60	3.105 48	30		6 290 4
	40	9755	484	9921	2	9755	485	251.541 12	3.030 65	20		7 338 8
	50	0.004 0239	485	9919	2	0.004 0240	485	248.510 47	2.958 49	10		8 387 2
14	0	0.004 0724	485	0.999 9917	2	0.004 0725	484	245.551 98	2.888 38	0	46	9 435 6
	10	1209	485	9915	2	1209	485	242.663 10	2.821 69	50		485
	20	1694	485	9913	2	1694	485	239.841 41	2.756 83	40		1 48 5
	30	2179	484	9911	2	2179	485	237.084 58	2.694 18	30		2 97 0
	40	2664	485	9909	2	2664	485	234.390 40	2.633 63	20		3 145 5
	50	3148	485	9907	2	3149	485	231.756 77	2.575 11	10		4 194 0
15	0	0.004 3633	485	0.999 9906	2	0.004 3634	484	229.181 66	2.518 51	0	45	5 242 5
	10	4118	485	9903	2	4118	485	226.663 15	2.463 76	50		6 291 0
	20	4603	485	9901	2	4603	485	224.199 39	2.410 78	40		7 339 5
	30	5088	484	9898	3	5088	485	221.788 61	2.359 48	30		8 388 0
	40	5572	485	9896	2	5573	485	219.429 13	2.309 82	20		9 436 5
	50	6057	485	9894	2	6058	484	217.119 31	2.261 69	10		
16	0	0.004 6542	485	0.999 9892	3	0.004 6542	485	214.857 62	2.215 06	0	44	
	10	7027	485	9889	2	7027	485	212.642 56	2.169 85	50		
	20	7512	484	9887	2	7512	485	210.472 71	2.126 02	40		Tangent
	30	7996	485	9885	2	7997	485	208.346 69	2.083 50	30		See columns above
	40	8481	485	9882	2	8482	485	206.263 19	2.042 24	20		for sine
	50	8966	485	9880	2	8967	484	204.220 95	2.002 26	10		
17	0	0.004 9451	485	0.999 9878	3	0.004 9451	485	202.218 75	1.963 32	0	43	
	10	9936	484	9875	2	9936	485	200.255 43	1.925 57	50		
	20	0.005 0420	485	9873	3	0.005 0421	485	198.329 86	1.888 88	40		
	30	0905	485	9870	2	0906	485	196.440 98	1.853 25	30		
	40	1390	485	9868	2	1391	485	194.587 73	1.818 61	20		
	50	1875	485	9865	2	1876	484	192.769 12	1.784 93	10		
18	0	0.005 2360	484	0.999 9863	3	0.005 2360	485	190.984 19	1.752 18	0	42	
	10	2844	485	9860	2	2845	485	189.232 01	1.720 93	50		
	20	3329	485	9858	3	3330	485	187.511 68	1.689 32	40		
	30	3814	485	9855	2	3815	485	185.822 36	1.659 16	30		
	40	4299	485	9853	2	4300	485	184.163 20	1.629 80	20		
	50	4784	484	9850	3	4784	485	182.533 40	1.601 20	10		
19	0	0.005 5268	485	0.999 9847	2	0.005 5269	485	180.932 20	1.573 36	0	41	
	10	5753	485	9845	3	5754	485	179.358 84	1.546 23	50		
	20	6238	485	9842	3	6239	485	177.812 61	1.519 79	40		
	30	6723	485	9839	3	6724	485	176.292 82	1.494 04	30		
	40	7208	485	9836	2	7209	484	174.798 78	1.468 93	20		
	50	7693	484	9834	3	7693	485	173.329 85	1.444 45	10		
20	0	0.005 8177		0.999 9831		0.005 8178		171.885 40		0	40	
		Cosine	Diff.	Sine	Diff.	Cotangent	Diff.	Tangent	Diff.	"	"	Proportional Parts

89° 40'

0° 20'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
20	0	0.005 8177		0.999 9831		0.005 8178		171.885 40		0	40	
	10	8662	485	9828	3	8663	485	170.464 83	1 420 57	50		
	20	9147	485	9825	3	9148	485	169.067 54	1 397 29	40		
	30	9632	485	9822	3	9633	485	167.692 98	1 374 56	30		
	40	0.006 0117	485	9819	3	0.006 0118	484	166.340 58	1 352 40	20		
	50	0601	484	9816	3	0602	485	165.009 82	1 330 76	10		
			485						1.309 63			
21	0	0.006 1086		0.999 9813		0.006 1087		163.700 19		0	39	
	10	1571	485	9810	3	1572	485	162.411 18	1.289 01	50		
	20	2056	485	9807	3	2057	485	161.142 31	1.268 87	40		
	30	2541	485	9804	3	2542	485	159.893 11	1.249 20	30		
	40	3025	484	9801	3	3027	485	158.663 13	1.229 98	20		
	50	3510	485	9798	3	3511	484	157.451 93	1.211 20	10		
			485				485		1.192 85			
22	0	0.006 3995		0.999 9795		0.006 3996		156.259 08		0	38	
	10	4480	485	9792	3	4481	485	155.084 17	1.174 91	50		
	20	4965	485	9789	3	4966	485	153.926 79	1.157 38	40		
	30	5449	484	9786	3	5451	485	152.786 56	1.140 23	30		
	40	5934	485	9783	3	5936	485	151.663 10	1.123 46	20		
	50	6419	485	9779	3	6420	484	150.556 04	1.107 06	10		
			485				485		1.091 02			
23	0	0.006 6904		0.999 9776		0.006 6905		149.465 02		0	37	
	10	7389	485	9773	3	7390	485	148.389 70	1.075 32	50		
	20	7873	484	9770	3	7875	485	147.329 74	1.059 96	40		
	30	8358	485	9766	3	8360	485	146.284 82	1.044 92	30		
	40	8843	485	9763	3	8845	485	145.254 61	1.030 21	20		
	50	9328	485	9760	4	9329	484	144.238 81	1.015 80	10		
			485				485		1.001 69			
24	0	0.006 9813		0.999 9756		0.006 9814		143.237 12		0	36	
	10	0.007 0297	484	9753	3	0.007 0299	485	142.249 25	0.987 87	50		
	20	0782	485	9749	4	0784	485	141.274 91	0.974 34	40		
	30	1267	485	9746	3	1269	485	140.313 82	0.961 09	30		
	40	1752	485	9743	3	1754	485	139.365 72	0.948 10	20		
	50	2237	484	9739	3	2238	485	138.430 35	0.935 37	10		
			485				485		0.922 90			
25	0	0.007 2721		0.999 9736		0.007 2723		137.507 45		0	35	
	10	3206	485	9732	4	3208	485	136.596 77	0.910 68	50		
	20	3691	485	9728	3	3693	485	135.698 07	0.898 70	40		
	30	4176	485	9725	4	4178	485	134.811 13	0.886 94	30		
	40	4661	484	9721	4	4663	485	133.935 70	0.875 43	20		
	50	5145	485	9718	3	5148	484	133.071.56	0.864 14	10		
			485				485		0.853 05			
26	0	0.007 5630		0.999 9714		0.007 5632		132.218 51		0	34	
	10	6115	485	9710	3	6117	485	131.376 32	0.842 19	50		
	20	6600	485	9707	4	6602	485	130.544 79	0.831 53	40		
	30	7085	484	9703	4	7087	485	129.723 72	0.821 07	30		
	40	7569	485	9699	4	7572	485	128.912 92	0.810 80	20		
	50	8054	485	9695	3	8057	484	128.112 18	0.800 74	10		
			485				485		0.790 84			
27	0	0.007 8539		0.999 9692		0.007 8541		127.321 34		0	33	
	10	9024	485	9688	4	9026	485	126.540 19	0.781 15	50		
	20	9509	485	9684	4	9511	485	125.768 57	0.771 62	40		
	30	9993	484	9680	4	9996	485	125.006 31	0.762 26	30		
	40	0.008 0478	485	9676	4	0.008 0481	485	124.253 22	0.753 09	20		
	50	0963	485	9672	4	0966	484	123.509 16	0.744 06	10		
			485				485		0.735 20			
28	0	0.008 1448		0.999 9668		0.008 1450		122.773 96		0	32	
	10	1933	485	9664	4	1935	485	122.047 45	0.726 51	50		
	20	2417	484	9660	4	2420	485	121.329 49	0.717 96	40		
	30	2902	485	9656	4	2905	485	120.619 93	0.709 56	30		
	40	3387	485	9652	4	3390	485	119.918 62	0.701 31	20		
	50	3872	485	9648	4	3875	485	119.225 42	0.693 20	10		
			485				485		0.685 24			
29	0	0.008 4357		0.999 9644		0.008 4380		118.540 18		0	31	
	10	4841	484	9640	4	4844	484	117.862 78	0.677 40	50		
	20	5326	485	9636	4	5329	485	117.193 07	0.669 71	40		
	30	5811	485	9632	4	5814	485	116.530 93	0.662 14	30		
	40	6296	485	9628	5	6299	485	115.876 23	0.654 70	20		
	50	6781	484	9623	4	6784	485	115.228 84	0.647 39	10		
			485				485		0.640 19			
30	0	0.008 7265		0.999 9619		0.008 7269		114.588 65		0	30	
		Cosine	Diff.	Sine	Diff.	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

Sine

	484	485
1	48 4	48 5
2	96 8	97 0
3	145 2	145 5
4	193 6	194 0
5	242 0	242 5
6	290 4	291 0
7	338 8	339 5
8	387 2	388 0
9	435 6	436 5

Cosine

Differences are too small to tabulate

Tangent

See columns above for sine

Cotangent

Differences are too large to tabulate

89° 30'

0° 30'

'	"	Sine	Diff.	Cosine	Diff.	Tangent	Diff.	Cotangent	Diff.			Proportional Parts
30	0	0.008 7265		0.999 9619		0.008 7269		114.588 65		0	30	Sine
	10	7750	485	9615	4	7754	485	113.955 53	633 12	50		484 485
	20	8235	485	9611	5	8238	485	113.329 37	626 16	40		1 48 4 48 5
	30	8720	485	9606	5	8723	485	112.710 05	619 32	30		2 96 8 97 0
	40	9205	485	9602	4	9208	485	112.097 46	612 59	20		3 145 2 145 5
	50	9689	484	9598	4	9693	485	111.491 50	605 96	10		4 193 6 194 0
			485		5		485		599 45			5 242 0 242 5
31	0	0.009 0174		0.999 9593		0.009 0178		110.892 05		0	29	6 290 4 291 0
	10	0659	485	9589	4	0663	485	110.299 01	593 04	50		7 338 8 339 5
	20	1144	485	9585	4	1147	484	109.712 28	586 73	40		8 387 2 388 0
	30	1629	485	9580	5	1632	485	109.131 76	580 52	30		9 435 6 436 5
	40	2113	484	9576	4	2117	485	108.557 35	574 41	20		
	50	2598	485	9571	4	2602	485	107.988 96	568 39	10		Cosine
			485						562 48			Differences are too small to tabulate
32	0	0.009 3083		0.999 9567		0.009 3087		107.426 48		0	28	Tangent
	10	3568	485	9562	5	3572	485	106.869 84	556 64	50		See columns above for sine
	20	4052	484	9558	4	4057	485	106.318 93	550 91	40		
	30	4537	485	9553	4	4541	484	105.773 67	545 26	30		
	40	5022	485	9549	4	5026	485	105.233 98	539 69	20		
	50	5507	485	9544	5	5511	485	104.699 76	534 22	10		
			485						528 82			Cotangent
33	0	0.009 5992		0.999 9539		0.009 5996		104.170 94		0	27	65 000 60 000
	10	6476	484	9535	4	6481	485	103.647 44	523 50	50		1 6 500 0 6 000 0
	20	6961	485	9530	5	6966	485	103.129 17	518 27	40		2 13 000 0 12 000 0
	30	7446	485	9525	5	7451	484	102.616 06	513 11	30		3 19 500 0 18 000 0
	40	7931	485	9520	4	7935	485	102.108 03	508 03	20		4 26 000 0 24 000 0
	50	8416	484	9516	5	8420	485	101.605 00	503 03	10		5 32 500 0 30 000 0
			485						498 10			6 39 000 0 36 000 0
34	0	0.009 8900		0.999 9511		0.009 8905		101.106 90		0	26	7 45 500 0 42 000 0
	10	9385	485	9506	5	9390	485	100.613 67	493 23	50		8 52 000 0 48 000 0
	20	9870	485	9501	5	9875	485	100.125 22	488 45	40		9 58 500 0 54 000 0
	30	0.010 0355	485	9496	4	0.010 0360	485	99.641 489	483 731	30		
	40	0840	484	9492	5	0845	485	99.162 411	479 078	20		
	50	1324	485	9487	5	1330	484	98.687 917	474 494	10		55 000 50 000
			485						469 974			1 5 500 0 5 000 0
35	0	0.010 1809		0.999 9482		0.010 1814		98.217 943		0	25	2 11 000 0 10 000 0
	10	2294	485	9477	5	2299	485	97.752 422	465 521	50		3 16 500 0 15 000 0
	20	2779	485	9472	5	2784	485	97.291 294	461 128	40		4 22 000 0 20 000 0
	30	3263	484	9467	5	3269	485	96.834 495	456 799	30		5 27 500 0 25 000 0
	40	3748	485	9462	5	3754	485	96.381 965	452 530	20		6 33 000 0 30 000 0
	50	4233	485	9457	5	4239	485	95.933 645	448 320	10		7 38 500 0 35 000 0
			485						444 170			8 44 000 0 40 000 0
36	0	0.010 4718		0.999 9452		0.010 4724		95.489 475		0	24	9 49 500 0 45 000 0
	10	5203	485	9447	5	5208	484	95.049 399	440 076	50		500 000
	20	5687	484	9441	6	5693	485	94.613 361	436 038	40		1 50 000 0
	30	6172	485	9436	5	6178	485	94.181 304	432 057	30		2 100 000 0
	40	6657	485	9431	5	6663	485	93.753 175	428 129	20		3 150 000 0
	50	7142	485	9426	5	7148	485	93.328 920	424 255	10		4 200 000 0
			485						420 433			5 250 000 0
37	0	0.010 7627		0.999 9421		0.010 7633		92.908 487		0	23	6 300 000 0
	10	8111	484	9416	5	8118	485	92.491 825	416 662	50		7 350 000 0
	20	8596	485	9410	6	8603	485	92.078 883	412 942	40		8 400 000 0
	30	9081	485	9405	5	9087	484	91.669 611	409 272	30		9 450 000 0
	40	9566	485	9400	5	9572	485	91.263 961	405 650	20		
	50	0.011 0050	484	9394	6	0.011 0057	485	90.861 885	402 076	10		400 000
			485						398 549			1 40 000 0
38	0	0.011 0535		0.999 9389		0.011 0542		90.463 336		0	22	2 80 000 0
	10	1020	485	9384	5	1027	485	90.068 267	395 069	50		3 120 000 0
	20	1505	485	9378	6	1512	485	89.676 634	391 633	40		4 160 000 0
	30	1990	485	9373	5	1997	485	89.288 391	388 243	30		5 200 000 0
	40	2474	484	9367	6	2482	485	88.903 495	384 896	20		6 240 000 0
	50	2959	485	9362	5	2966	484	88.521 902	381 593	10		7 280 000 0
			485						378 330			8 320 000 0
39	0	0.011 3444		0.999 9357		0.011 3451		88.143 572		0	21	9 360 000 0
	10	3929	485	9351	6	3936	485	87.768 460	375 112	50		300 000
	20	4414	485	9345	6	4421	485	87.396 528	371 932	40		1 30 000 0
	30	4898	484	9340	5	4906	485	87.027 734	368 794	30		2 60 000 0
	40	5383	485	9334	6	5391	485	86.662 039	365 695	20		3 90 000 0
	50	5868	485	9329	5	5876	485	86.299 404	362 635	10		4 120 000 0
			485						359 613			5 150 000 0
40	0	0.011 6363		0.999 9323		0.011 6361		85.939 791		0	20	6 180 000 0
												7 210 000 0
												8 240 000 0
												9 270 000 0
		Cosine	Diff.	Sine	Diff.	Cotangent	Diff.	Tangent	Diff.	"	'	Proportional Parts

89° 20'

89° 10'

0° 50'

'	"	Sine	Diff.	Cosine	Diff.	Tangent	Diff.	Cotangent	Diff.			Proportional Parts
50	0	0.014 5439		0.999 8942		0.014 5454		68.750 087		0	10	
	10	5924	485	8935	7	5939	485	.521 649	228 438			Sine
	20	6409	485	8928	7	6424	485	.294 724	226 925			484 485
	30	6893	484	8921	7	6909	485	.069 297	225 427			1 48 4 48 5
	40	7378	485	8914	7	7394	485	67.845 352	223 945			2 96 8 97 0
	50	7863	485	8907	7	7879	485	.622 876	222 476			3 145 2 145 5
									221 022			4 193 6 194 0
51	0	0.014 8348		0.999 8900		0.014 8364		67.401 854		0	9	
	10	8832	484	8892	8	8849	485	.182 272	219 582			5 242 0 242 5
	20	9317	485	8885	7	9334	485	66.964 115	218 157			6 290 4 291 0
	30	9802	485	8878	7	9819	485	.747 371	216 744			7 338 8 339 5
	40	0.015 0287	485	8871	8	0.015 0304	484	.532 024	215 347			8 387 2 388 0
	50	0771	484	8863	7	0788	485	.318 063	213 961			9 435 6 436 5
									212 590			Cosine
52	0	0.015 1256		0.999 8866		0.015 1273		66 105 473		0	8	Differences are too small to tabulate
	10	1741	485	8849	7	1758	485	65.894 241	211 232			Tangent
	20	2226	485	8841	8	2243	485	.684 354	209 887			See columns above for sine
	30	2710	484	8834	7	2728	485	.475 800	208 554			
	40	3195	485	8826	8	3213	485	.268 566	207 234			
	50	3680	485	8819	7	3698	485	.062 639	205 927			
									204 631			Cotangent
53	0	0.015 4165		0.999 8812		0.015 4183		64.858 008		0	7	
	10	4649	484	8804	8	4668	485	.654 659	203 349			230 000 220 000
	20	5134	485	8797	7	5153	485	.452 581	202 078			1 23 000 0 22 000 0
	30	5619	485	8789	8	5638	485	.251 761	200 820			2 46 000 0 44 000 0
	40	6104	485	8782	7	6123	485	.052 189	199 572			3 69 000 0 66 000 0
	50	6588	484	8774	8	6608	485	63.853 853	198 336			4 92 000 0 88 000 0
									197 112			5 115 000 0 110 000 0
54	0	0.015 7073		0.999 8766		0.015 7093		63.656 741		0	6	
	10	7558	485	8759	7	7577	484	.460 842	195 899			6 138 000 0 132 000 0
	20	8043	485	8751	8	8062	485	.266 145	194 697			7 161 000 0 154 000 0
	30	8527	484	8743	7	8547	485	.072 638	193 507			8 184 000 0 175 000 0
	40	9012	485	8736	8	9032	485	62 880 311	192 327			9 207 000 0 198 000 0
	50	9497	485	8728	8	9517	485	.689 153	191 158			
									189 999			210 000 200 000
55	0	0.015 9982		0.999 8720		0 016 0002		62.499 154		0	5	
	10	0.016 0466	484	8712	7	0487	485	.310 302	188 852			1 21 000 0 20 000 0
	20	0951	485	8705	8	0972	485	.122 588	187 714			2 42 000 0 40 000 0
	30	1436	485	8697	8	1457	485	61 936 002	186 586			3 63 000 0 60 000 0
	40	1921	485	8689	8	1942	485	.750 532	185 470			4 84 000 0 80 000 0
	50	2405	484	8681	8	2427	485	566 170	184 362			5 105 000 0 100 000 0
									183 265			6 126 000 0 120 000 0
56	0	0.016 2890		0.999 8673		0 016 2912		61 382 905		0	4	
	10	3375	485	8665	8	3397	485	.200 728	182 177			1 19 000 0 18 000 0
	20	3860	485	8657	8	3882	485	.019 628	181 100			2 38 000 0 36 000 0
	30	4344	484	8649	8	4367	485	60 839 597	180 031			3 57 000 0 54 000 0
	40	4829	485	8641	8	4852	485	.660 625	178 972			4 76 000 0 72 000 0
	50	5314	485	8633	8	5337	484	.482 702	177 923			5 95 000 0 90 000 0
									176 882			6 114 000 0 108 000 0
57	0	0.016 5799		0 999 8625		0.016 5821		60.305 820		0	3	
	10	6283	484	8617	8	6306	485	.129 969	175 851			7 133 000 0 126 000 0
	20	6768	485	8609	8	6791	485	59 955 140	174 829			8 152 000 0 144 000 0
	30	7253	485	8601	8	7276	485	.781 325	173 815			9 171 000 0 162 000 0
	40	7738	485	8593	8	7761	485	.608 514	172 811			
	50	8222	484	8585	8	8246	485	.436 699	171 815			170 000 160 000
									170 827			1 17 000 0 16 000 0
58	0	0.016 8707		0 999 8577		0.016 8731		59.265 872		0	2	
	10	9192	485	8569	8	9216	485	.096 024	169 848			2 34 000 0 32 000 0
	20	9677	485	8560	9	9701	485	58 927 146	168 878			3 51 000 0 48 000 0
	30	0.017 0161	484	8552	8	0 017 0186	485	.759 230	167 916			4 68 000 0 64 000 0
	40	0646	485	8544	8	0671	485	.592 268	166 962			5 85 000 0 80 000 0
	50	1131	485	8536	9	1156	485	.426 252	166 016			6 102 000 0 96 000 0
									165 078			7 119 000 0 112 000 0
59	0	0.017 1616		0 999 8527		0.017 1641		58 261 174		0	1	
	10	2100	484	8519	8	2126	485	.097 025	164 149			1 15 000 0 14 000 0
	20	2585	485	8511	9	2611	485	57.933 799	163 226			2 30 000 0 28 000 0
	30	3070	485	8502	8	3096	485	.771 487	162 312			3 45 000 0 42 000 0
	40	3555	485	8494	8	3581	485	.610 082	161 405			4 60 000 0 57 000 0
	50	4039	484	8485	9	4066	485	.449 576	160 506			5 75 000 0 72 000 0
									159 614			6 90 000 0 87 000 0
60	0	0.017 4524		0.999 8477		0.017 4551		57.289 962		0	0	
												7 105 000 0 102 000 0
												8 120 000 0 116 000 0
												9 135 000 0 130 000 0
		Cosine	Diff.	Sine	Diff.	Cotangent	Diff.	Tangent	Diff.	"	'	Proportional Parts

89° 00'

SINES, COSINES, TANGENTS AND COTANGENTS

7

1° 0'

"	Sine	Diff.	Cosine	Diff.	Tangent	Diff.	Cotangent	Diff.			Proportional Parts
0	0.017 4524		0.999 8477		0.017 4551		57.289 962		0	60	
10	5009	485	8468	9	5036	485	.131 231	158 731	50		
20	5494	485	8460	9	5521	485	56.973 378	157 853	40		
30	5978	484	8451	9	6006	485	.816 394	156 984	30		Sine
40	6463	485	8443	8	6491	485	.660 273	156 121	20		484 485
50	6948	485	8434	9	6975	484	.505 007	155 266	10		1 48 4 48 5
		484		8		485		154 417			2 96 8 97 0
0	0.017 7432		0.999 8426		0.017 7460		56.350 590		0	59	
10	7917	485	8417	9	7945	485	.197 013	153 577	50		3 145 2 145 5
20	8402	485	8409	8	8430	485	.044 272	152 741	40		4 193 6 194 0
30	8887	485	8400	9	8915	485	55.892 358	151 914	30		5 242 0 242 5
40	9371	484	8391	9	9400	485	.741 265	151 093	20		6 290 4 291 0
50	9856	485	8382	8	9885	485	.590 987	150 278	10		7 338 8 339 5
		485		8		485		149 470			8 387 2 388 0
0	0.018 0341		0.999 8374		0.018 0370		55.441 517		0	58	
10	0826	485	8365	9	0855	485	.292 848	148 669	50		
20	1310	484	8356	9	1340	485	.144 974	147 874	40		Cosine
30	1795	485	8347	8	1825	485	54.997 888	147 086	30		Differences are too small to tabulate
40	2280	485	8339	9	2310	485	.851 585	146 303	20		
50	2765	484	8330	9	2795	485	.706 058	145 527	10		
		485		9		485		144 758			
0	0.018 3249		0.999 8321		0.018 3280		54.661 300		0	57	
10	3734	485	8312	9	3765	485	.417 307	143 993	50		
20	4219	485	8303	9	4250	485	.274 071	143 236	40		Tangent
30	4704	485	8294	9	4735	485	.131 587	142 484	30		See columns above for sine
40	5188	484	8285	9	5220	485	53.989 849	141 738	20		
50	5673	485	8276	9	5705	485	.848 851	140 998	10		
		485		9		485		140 263			
0	0.018 6168		0.999 8267		0.018 6190		53.708 588		0	56	
10	6642	484	8258	9	6675	485	.569 052	139 536	50		
20	7127	485	8249	9	7160	485	.430 240	138 812	40		
30	7612	485	8240	9	7645	485	.292 145	138 095	30		
40	8097	485	8231	9	8130	485	.154 762	137 383	20		
50	8581	484	8222	9	8615	485	.018 085	136 677	10		
		485		9		485		135 976			
0	0.018 9066		0.999 8213		0.018 9100		52.882 109		0	55	
10	9551	485	8203	10	9585	485	.746 828	135 281	50		
20	0.019 0036		8194	9	0.019 0070		.612 238	134 590	40		
30	0520	484	8185	9	0555	485	.478 332	133 906	30		
40	1005	485	8176	10	1040	485	.345 106	133 226	20		
50	1490	484	8166	9	1525	485	.212 555	132 551	10		
		485		9		485		131 882			
0	0.019 1974		0.999 8157		0.019 2010		52.080 673		0	54	
10	2459	485	8148	9	2495	485	.51 949 455	131 218	50		
20	2944	485	8138	9	2980	485	.818 896	130 559	40		
30	3429	485	8129	9	3465	485	.688 992	129 904	30		
40	3913	484	8120	9	3950	485	.559 737	129 255	20		
50	4398	485	8110	10	4435	485	.431 127	128 610	10		
		485		9		485		127 970			
0	0.019 4883		0.999 8101		0.019 4920		51.303 157		0	53	
10	5367	484	8091	10	5405	485	.175 821	127 336	50		
20	5852	485	8082	9	5890	485	.049 116	126 705	40		
30	6337	485	8072	10	6375	485	50 923 037	126 079	30		
40	6822	485	8063	9	6860	485	.797 578	125 459	20		
50	7306	484	8053	10	7345	485	.672 736	124 842	10		
		485		9		485		124 230			
0	0.019 7791		0.999 8044		0.019 7830		50.548 506		0	52	
10	8276	485	8034	10	8315	485	.424 883	123 623	50		
20	8761	485	8025	9	8800	485	.301 863	123 020	40		
30	9245	484	8015	10	9285	485	.179 442	122 421	30		
40	9730	485	8005	9	9770	485	.057 615	121 827	20		
50	0.020 0215		7996	10	0.020 0255		49.936 378	121 237	10		
		484		10		485		120 652			
0	0.020 0699		0.999 7986		0.020 0740		49.815 726		0	51	
10	1184	485	7976	10	1225	485	.695 656	120 070	50		
20	1669	485	7966	10	1710	485	.576 163	119 493	40		
30	2154	485	7956	9	2195	485	.457 243	118 920	30		
40	2638	484	7947	9	2680	485	.338 892	118 351	20		
50	3123	485	7937	10	3165	485	.221 106	117 786	10		
		485		10		485		117 225			
0	0.020 3608		0.999 7927		0.020 3650		49.103 881		0	50	
	Cosine	Diff.	Sine	Diff.	Cotangent	Diff.	Tangent	Diff.	"	'	Proportional Parts

88° 50'

1° 10'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
10	0	0.020 3608		0.999 7927		0.020 3650		49.103 881		0	50	
	10	4092	484	7917	10	4135	485	48.987 212	116 669	50		
	20	4577	485	7907	10	4620	485	.871 096	116 116	40		
	30	5062	485	7897	10	5105	485	.755 529	115 567	30		
	40	5547	485	7887	10	5590	485	.640 508	115 021	20		
	50	6031	484	7877	10	6075	485	.526 027	114 481	10		
			485						113 943			
11	0	0.020 6516		0.999 7867		0.020 6560		48.412 084		0	49	
	10	7001	485	7857	10	7045	485	.298 675	113 409	50		
	20	7485	484	7847	10	7530	485	.185 795	112 880	40		
	30	7970	485	7837	10	8015	485	.073 441	112 354	30		
	40	8455	485	7827	10	8500	485	47.961 610	111 831	20		
	50	8939	484	7817	10	8985	485	.850 298	111 312	10		
			485						110 797			
12	0	0.020 9424		0.999 7807		0.020 9470		47.739 501		0	48	
	10	9909	485	7797	10	9955	485	.629 216	110 285	50		
	20	0.021 0394	485	7786	11	0.021 0440	485	.519 439	109 777	40		
	30	0878	484	7776	10	0925	485	.410 167	109 272	30		
	40	1363	485	7766	10	1410	485	.301 396	108 771	20		
	50	1848	485	7756	10	1895	485	.193 122	108 274	10		
			484		11				107 779			
13	0	0.021 2332		0.999 7745		0.021 2380		47.085 343		0	47	
	10	2817	485	7735	10	2865	485	46.978 055	107 288	50		
	20	3302	485	7725	10	3350	485	.871 254	106 801	40		
	30	3787	485	7715	10	3835	485	.764 938	106 316	30		
	40	4271	484	7704	11	4320	485	.659 103	105 835	20		
	50	4756	485	7694	10	4805	486	.553 745	105 358	10		
					11				104 883			
14	0	0.021 5241		0.999 7683		0.021 5291		46.448 862		0	46	
	10	5725	484	7673	11	5776	485	.344 450	104 412	50		
	20	6210	485	7662	11	6261	485	.240 507	103 943	40		
	30	6695	485	7652	11	6746	485	.137 028	103 479	30		
	40	7179	484	7641	11	7231	485	.034 011	103 017	20		
	50	7664	485	7631	10	7716	485	45.931 453	102 558	10		
					11				102 102			
15	0	0.021 8149		0.999 7620		0.021 8201		45.829 351		0	45	
	10	8634	485	7610	10	8686	485	.727 702	101 649	50		
	20	9118	484	7599	11	9171	485	.626 502	101 200	40		
	30	9603	485	7588	11	9656	485	.525 749	100 753	30		
	40	0.022 0088	485	7578	11	0.022 0141	485	425 440	100 309	20		
	50	0572	484	7567	11	0626	485	.325 571	99 869	10		
			485						99 430			
16	0	0.022 1057		0.999 7556		0.022 1111		45.226 141		0	44	
	10	1542	485	7546	10	1596	485	.127 145	98 996	50		
	20	2026	484	7535	11	2081	485	.028 582	98 563	40		
	30	2511	485	7524	11	2566	485	44 930 448	98 134	30		
	40	2996	485	7513	11	3051	485	832 741	97 707	20		
	50	3481	485	7503	11	3536	485	.735 458	97 283	10		
			484						96 862			
17	0	0.022 3965		0.999 7492		0.022 4021		44.638 596		0	43	
	10	4450	485	7481	11	4506	485	.542 152	96 444	50		
	20	4935	485	7470	11	4992	486	.446 123	96 029	40		
	30	5419	484	7459	11	5477	485	.350 508	95 615	30		
	40	5904	485	7448	11	5962	485	.255 303	95 205	20		
	50	6389	485	7437	11	6447	485	.160 506	94 797	10		
			484						94 393			
18	0	0.022 6873		0.999 7426		0.022 6932		44.066 113		0	42	
	10	7358	485	7415	11	7417	485	43.972 123	93 990	50		
	20	7843	485	7404	11	7902	485	.878 533	93 590	40		
	30	8327	484	7393	11	8387	485	.785 341	93 192	30		
	40	8812	485	7382	11	8872	485	.692 543	92 798	20		
	50	9297	485	7371	11	9357	485	.600 137	92 406	10		
			484						92 015			
19	0	0.022 9781		0.999 7360		0.022 9842		43.508 122		0	41	
	10	0.023 0266	485	7349	11	0.023 0327	485	.416 493	91 629	50		
	20	0751	485	7337	12	0812	485	.325 250	91 243	40		
	30	1236	485	7326	11	1297	485	.234 389	90 861	30		
	40	1720	484	7315	11	1782	485	.143 908	90 481	20		
	50	2205	485	7304	12	2268	486	.053 805	90 103	10		
							485		89 728			
20	0	0.023 2690		0.999 7292		0.023 2753		42.964 077		0	40	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

Sine

	484	485	486
1	48 4	48 5	48 6
2	96 8	97 0	97 2
3	145 2	145 5	145 8
4	193 6	194 0	194 4
5	242 0	242 5	243 0
6	290 4	291 0	291 6
7	338 8	339 5	340 2
8	387 2	388 0	388 8
9	435 6	436 5	437 4

Cosine

	10	11	12
1	1 0	1 1	1 2
2	2 0	2 2	2 4
3	3 0	3 3	3 6
4	4 0	4 4	4 8
5	5 0	5 5	6 0
6	6 0	6 6	7 2
7	7 0	7 7	8 4
8	8 0	8 8	9 6
9	9 0	9 9	10 8

Tangent

See columns above
for sine

Cotangent

	120 000	110 000
1	12 000 0	11 000 0
2	24 000 0	22 000 0
3	36 000 0	33 000 0
4	48 000 0	44 000 0
5	60 000 0	55 000 0
6	72 000 0	66 000 0
7	84 000 0	77 000 0
8	96 000 0	88 000 0
9	108 000 0	99 000 0

	100 000	90 000
1	10 000 0	9 000 0
2	20 000 0	18 000 0
3	30 000 0	27 000 0
4	40 000 0	36 000 0
5	50 000 0	45 000 0
6	60 000 0	54 000 0
7	70 000 0	63 000 0
8	80 000 0	72 000 0
9	90 000 0	81 000 0

88° 40'

1° 20'

'	"	Sine	Diff.	Cosine	Diff.	Tangent	Diff.	Cotangent	Diff.			Proportional Parts
20	0	0.023 2890	484	0.999 7292	11	0.023 2753	485	42.964 077	89 354	0	40	Sine
	10	3174	485	7281	11	3238	485	.874 723	88 984	50		1 484 485 486
	20	3659	485	7270	11	3723	485	.785 739	88 616	40		2 96 8 97 0 97 2
	30	4144	484	7258	11	4208	485	.697 123	88 249	30		3 145 2 145 5 145 8
	40	4628	485	7247	11	4693	485	.608 874	87 886	20		4 193 6 194 0 194 4
	50	5113	485	7236	12	5178	485	.520 988	87 524	10		5 242 0 242 5 243 0
21	0	0.023 5698	484	0.999 7224	11	0.023 5663	485	42.433 464	87 165	0	39	Cosine
	10	6082	485	7213	12	6148	485	.346 299	86 807	50		6 290 4 291 0 291 6
	20	6567	485	7201	11	6633	485	.259 492	86 453	40		7 338 8 339 5 340 2
	30	7052	484	7190	12	7118	485	.173 039	86 100	30		8 387 2 388 0 388 8
	40	7536	485	7178	11	7603	485	.086 939	85 749	20		9 435 6 436 5 437 4
	50	8021	485	7167	12	8088	486	.001 190	85 400	10		11 12 13
22	0	0.023 8506	484	0.999 7155	11	0.023 8574	485	41.915 790	85 054	0	38	1 11 1 2 1 3
	10	8990	485	7144	12	9059	485	.830 736	84 710	50		2 2 2 2 4 2 6
	20	9475	485	7132	11	9544	485	.746 026	84 368	40		3 3 3 3 6 3 9
	30	9960	484	7121	12	0.024 0029	485	.661 658	84 027	30		4 4 4 4 8 5 2
	40	0.024 0444	485	7109	11	0514	485	.577 631	83 690	20		5 5 5 6 0 6 5
	50	0929	485	7097	12	0999	485	.493 941	83 353	10		6 6 6 7 2 7 8
23	0	0.024 1414	484	0.999 7086	12	0.024 1484	485	41.410 588	83 020	0	37	7 7 7 8 4 9 1
	10	1898	485	7074	12	1969	485			50		8 8 8 9 6 10 4
	20	2383	485	7062	11		485	.244 881	82 687	40		9 9 9 10 8 11 7
	30	2868	484	7050	12	2939	485	.162 523	82 358	30		
	40	3352	485	7039	11	3425	486	.080 494	82 029	20		
	50	3837	485	7027	12	3910	485	40.998 791	81 703	10		
24	0	0.024 4322	484	0.999 7015	12	0.024 4395	485	40.917 412	81 379	0	36	Tangent
	10	4806	485	7003	12	4880	485	.836 355	81 057	50		See columns above for sine
	20	5291	485	6991	12	5365	485	.755 618	80 737	40		Cotangent
	30	5776	484	6979	12	5850	485	.675 200	80 418	30		89 000 87 000
	40	6260	485	6967	12	6335	485	.595 098	80 102	20		1 8 900 0 8 700 0
	50	6745	485	6955	12	6820	485	.515 312	79 786	10		2 17 800 0 17 400 0
25	0	0.024 7230	484	0.999 6943	12	0.024 7305	485	40.435 837	79 475	0	35	3 26 700 0 26 100 0
	10	7714	485	6931	12	7790	485	.356 674	79 163	50		4 35 600 0 34 800 0
	20	8199	485	6919	12	8276	486	.277 820	78 854	40		5 44 500 0 43 500 0
	30	8684	484	6907	12	8761	485	.199 274	78 546	30		6 53 400 0 52 200 0
	40	9168	485	6895	12	9246	485	.121 033	78 241	20		7 62 300 0 60 900 0
	50	9653	485	6883	12	9731	485	.043 096	77 937	10		8 71 200 0 69 600 0
26	0	0.025 0138	484	0.999 6871	12	0.025 0216	485	39.965 461	77 635	0	34	9 80 100 0 78 300 0
	10	0622	485	6859	12	0701	485	.888 126	77 335	50		85 000 83 000
	20	1107	485	6847	12	1186	486	.811 089	77 037	40		1 8 500 0 8 300 0
	30	1592	484	6835	12	1671	485	.734 350	76 739	30		2 17 000 0 16 600 0
	40	2076	485	6822	13	2157	485	.657 905	76 445	20		3 25 500 0 24 900 0
	50	2561	485	6810	12	2642	485	.581 754	76 151	10		4 34 000 0 33 200 0
27	0	0.025 3046	484	0.999 6798	12	0.025 3127	485	39.505 895	75 859	0	33	5 42 500 0 41 500 0
	10	3530	485	6786	12	3612	485	.430 325	75 570	50		6 51 000 0 49 800 0
	20	4015	485	6773	13	4097	485	.355 044	75 281	40		7 59 500 0 58 100 0
	30	4500	484	6761	12	4582	485	.280 050	74 994	30		8 68 000 0 66 400 0
	40	4984	485	6749	13	5067	485	.205 341	74 709	20		9 76 500 0 74 700 0
	50	5469	485	6736	12	5552	486	.130 915	74 426	10		
28	0	0.025 5954	484	0.999 6724	13	0.025 6038	485	39.056 771	74 144	0	32	77 000 75 000
	10	6438	485	6711	13	6523	485	.38.982 908	73 863	50		1 7 700 0 7 500 0
	20	6923	485	6699	12	7008	485	.909 323	73 585	40		2 15 400 0 15 000 0
	30	7408	484	6687	13	7493	485	.836 015	73 308	30		3 23 100 0 22 500 0
	40	7892	485	6674	13	7978	485	.762 982	73 033	20		4 30 800 0 30 000 0
	50	8377	485	6662	12	8463	485	.690 224	72 758	10		5 38 500 0 37 500 0
29	0	0.025 8862	484	0.999 6649	13	0.025 8948	485	38.617 738	72 486	0	31	6 46 200 0 45 000 0
	10	9346	485	6636	13	9434	486	.545 523	72 215	50		7 53 900 0 52 500 0
	20	9831	485	6624	12	9919	485	.473 578	71 945	40		8 61 600 0 60 000 0
	30	0.026 0316	484	6611	12	0.026 0404	485	.401 900	71 678	30		9 69 300 0 67 500 0
	40	0800	485	6599	13	0889	485	.330 489	71 411	20		
	50	1285	484	6586	13	1374	485	.259 342	71 147	10		
30	0	0.026 1769		0.999 6573		0.026 1859		38.188 459	70 883	0	30	
												Proportional Parts

88° 30'

TEN SECOND NATURAL TRIGONOMETRIC FUNCTIONS

1° 30'

'	"	Sine	Diff.	Cosine	Diff.	Tangent	Diff.	Cotangent	Diff.			Proportional Parts
30	0	0.026 1769		0.999 6573		0.026 1859		38.188 459		0	30	
	10	2254	485	6561	12	2344	485	.117 838	70 621			Sine
	20	2739	485	6548	13	2830	486	.047 478	70 360		50	484 485 486
	30	3223	484	6535	13	3315	485	37.977 377	70 101		40	1 48 4 48.5 48.6
	40	3708	485	6522	13	3800	485	.907 533	69 844		30	2 90 8 97.0 97.2
	50	4193	485	6510	12	4285	485	.837 946	69 587		20	3 145 2 145.5 145.8
			484		13		485		69 333		10	4 193 6 194 0 194 4
31	0	0.026 4677		0.999 6497		0.026 4770		37.768 613		0	29	
	10	5162	485	6484	13	5255	485	.699 534	69 079			5 242 0 242.5 243 0
	20	5647	485	6471	13	5740	486	.630 707	68 827		50	6 290 4 291 0 291 6
	30	6131	484	6458	13	6226	485	.562 130	68 577		40	7 338 8 339 5 340 2
	40	6616	485	6445	13	6711	485	.493 803	68 327		30	8 387 2 388 0 388 8
	50	7101	485	6432	13	7196	485	.425 724	68 079		20	9 435 6 436 5 437 4
			484		13		485		67 832		10	
32	0	0.026 7685		0.999 6419		0.026 7681		37.357 892		0	28	Cosine
	10	8070	485	6406	13	8166	485	.290 304	67 588			12 13 14
	20	8554	484	6393	13	8651	485	.222 961	67 343		50	1 1 2 1 3 1 4
	30	9039	485	6380	13	9137	486	.155 860	67 101		40	2 2 4 2 6 2 8
	40	9524	485	6367	13	9622	485	.089 001	66 859		30	3 3 6 3 9 4 2
	50	0.027 0008	484	6354	13	0.027 0107	485	.022 382	66 619		20	4 4 8 5 2 5 6
			485		13		485		66 381		10	5 6 0 6 5 7 0
33	0	0.027 0493		0.999 6341		0.027 0592		36.956 001		0	27	
	10	0978	485	6328	13	1077	485	.889 858	66 143			6 7 2 7 8 8 4
	20	1461	484	6315	13	1562	486	.823 951	65 907		50	7 8 4 9 1 9 8
	30	1947	485	6302	13	2048	485	.758 279	65 674		40	8 9 6 10 4 11 2
	40	2432	485	6288	14	2533	485	.692 840	65 439		30	9 10 8 11 7 12 6
	50	2916	484	6275	13	3018	485	.627 634	65 206		20	
			485		13		485		64 975		10	Tangent
34	0	0.027 3401		0.999 6262		0.027 3503		36.562 659		0	26	See columns above for sine
	10	3885	484	6249	13	3988	485	.497 914	64 745			
	20	4370	485	6235	13	4473	486	.433 398	64 516		50	
	30	4855	485	6222	13	4959	486	.369 109	64 289		40	
	40	5339	484	6209	13	5444	485	.305 047	64 062		30	Cotangent
	50	5824	485	6195	13	5929	485	.241 210	63 837		20	71 000 69 000
			485		13		485		63 614		10	1 7 100 0 6 900 0
35	0	0.027 6309		0.999 6182		0.027 6414		36.177 596		0	25	2 14 200 0 13 800 0
	10	6793	484	6169	13	6899	485	.114 206	63 390			3 21 300 0 20 700 0
	20	7278	485	6155	14	7385	486	.051 037	63 169		50	4 28 400 0 27 600 0
	30	7763	485	6142	13	7870	485	.35.988 088	62 949		40	5 35 500 0 34 500 0
	40	8247	484	6128	14	8355	485	.925 359	62 729		30	6 42 600 0 41 400 0
	50	8732	485	6115	13	8840	485	.862 847	62 512		20	7 49 700 0 48 300 0
			484		14		485		62 294		10	8 56 800 0 55 200 0
36	0	0.027 9216		0.999 6101		0.027 9325		35.800 553		0	24	9 63 900 0 62 100 0
	10	9701	485	6088	13	9810	485	.738 475	62 078			67 000 65 000
	20	0.028 0186	485	6074	14	0.028 0296	486	.676 611	61 854		50	1 6 700 0 6 500 0
	30	0670	484	6060	14	0781	485	.614 961	61 650		40	2 13 400 0 13 000 0
	40	1155	485	6047	13	1266	485	.553 524	61 437		30	3 20 100 0 19 500 0
	50	1640	485	6033	13	1751	485	.492 298	61 226		20	4 26 800 0 26 000 0
			484		13		485		61 016		10	5 33 500 0 32 500 0
37	0	0.028 2124		0.999 6020		0.028 2236		35.431 282		0	23	6 40 200 0 39 000 0
	10	2609	485	6006	14	2722	486	.370 476	60 806			7 46 900 0 45 500 0
	20	3093	484	5992	14	3207	485	.309 878	60 598		50	8 53 600 0 52 000 0
	30	3578	485	5978	14	3692	485	.249 487	60 391		40	9 60 300 0 58 500 0
	40	4063	484	5965	13	4177	485	.189 302	60 185		30	63 000 61 000
	50	4547	485	5951	14	4662	486	.129 322	59 980		20	1 6 300 0 6 100 0
			484		14		485		59 776		10	2 12 600 0 12 200 0
38	0	0.028 5032		0.999 5937		0.028 5148		35.069 546		0	22	3 18 900 0 18 500 0
	10	5516	484	5923	14	5633	485	.009 973	59 573			4 25 200 0 24 400 0
	20	6001	485	5909	14	6118	485	34.950 601	59 372		50	5 31 500 0 30 500 0
	30	6486	485	5895	13	6603	486	.891 431	59 170		40	6 37 800 0 36 600 0
	40	6970	484	5882	13	7089	485	.832 461	58 970		30	7 44 100 0 42 700 0
	50	7455	485	5868	14	7574	485	.773 689	58 772		20	8 50 400 0 48 800 0
			484		14		485		58 574		10	9 56 700 0 54 900 0
39	0	0.028 7940		0.999 5854		0.028 8059		34.715 115		0	21	59 000 57 000
	10	8424	484	5840	14	8544	485	.656 738	58 377			1 5 900 0 5 700 0
	20	8909	485	5826	14	9029	486	.598 557	58 181		50	2 11 800 0 11 400 0
	30	9393	484	5812	14	9515	485	.540 570	57 987		40	3 17 700 0 17 100 0
	40	9878	485	5798	14	0.029 0000	486	.482 778	57 792		30	4 23 600 0 22 800 0
	50	0.029 0363	485	5784	14	0485	485	.425 178	57 600		20	5 29 500 0 28 500 0
			484		14		485		57 407		10	6 35 400 0 34 300 0
40	0	0.029 0847		0.999 5770		0.029 0970		34.367 771		0	20	7 41 300 0 39 900 0
												8 47 200 0 45 600 0
												9 53 100 0 51 300 0
												Proportional Parts

88° 20'

1° 40'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff.			Proportional Parts
40	0	0.029 0847		0.999 5770		0.029 0970		34.367 771		0	20	
	10	1332	485	5755	15	1456	486	.310 554	57 217	50		
	20	1816	484	5741	14	1941	485	.253 528	57 026	40		
	30	2301	485	5727	14	2426	485	.196 690	56 838	30		
	40	2786	485	5713	14	2911	485	.140 041	56 649	20		
	50	3270	484	5699	14	3396	485	.083 579	56 462	10		
			485		15		486		56 276			
41	0	0.029 3755		0.999 5684		0.029 3882		34.027 303		0	19	
	10	4239	484	5670	14	4367	485	.33.971 212	56 091	50		
	20	4724	485	5656	14	4852	485	.915 306	55 906	40		
	30	5209	485	5642	14	5337	485	.859 584	55 722	30		
	40	5693	484	5627	15	5823	486	.804 044	55 540	20		
	50	6178	485	5613	14	6308	485	.748 686	55 358	10		
			484		14		485		55 177			
42	0	0.029 6662		0.999 5599		0.029 6793		33.693 509		0	18	
	10	7147	485	5584	15	7278	485	.638 512	54 997	50		
	20	7632	485	5570	14	7764	486	.583 694	54 818	40		
	30	8116	484	5555	14	8249	485	.529 054	54 640	30		
	40	8601	485	5541	14	8734	485	.474 591	54 463	20		
	50	9085	484	5526	14	9219	485	.420 305	54 286	10		
			485		15		486		54 111			
43	0	0.029 9570		0.999 5512		0.029 9705		33.366 194		0	17	
	10	0.030 0055	485	5497	15	0.030 0190	485	.312 259	53 935	50		
	20	0539	484	5483	14	0675	485	.258 497	53 762	40		
	30	1024	485	5468	15	1160	485	.204 908	53 589	30		
	40	1508	484	5454	14	1646	486	.151 492	53 416	20		
	50	1993	485	5439	15	2131	485	.098 247	53 245	10		
			485		15		485		53 074			
44	0	0.030 2478		0.999 5424		0.030 2616		33.045 173		0	16	
	10	2962	484	5410	14	3101	485	.32.992 268	52 905	50		
	20	3447	485	5395	15	3587	486	.939 532	52 736	40		
	30	3931	484	5380	15	4072	485	.886 965	52 567	30		
	40	4416	485	5365	15	4557	485	.834 565	52 400	20		
	50	4901	484	5351	14	5042	485	.782 331	52 234	10		
			485		15		486		52 067			
45	0	0.030 5385		0.999 5336		0.030 5528		32.730 264		0	15	
	10	5870	485	5321	15	6013	485	.678 361	51 903	50		
	20	6354	484	5306	15	6498	485	.626 622	51 739	40		
	30	6839	485	5291	15	6983	486	.575 047	51 575	30		
	40	7323	484	5276	14	7469	485	.523 635	51 412	20		
	50	7808	485	5262	15	7954	485	.472 384	51 251	10		
			485		15		485		51 089			
46	0	0.030 8293		0.999 5247		0.030 8439		32.421 295		0	14	
	10	8777	484	5232	15	8925	486	.370 365	50 930	50		
	20	9262	485	5217	15	9410	485	.319 596	50 769	40		
	30	9746	484	5202	15	9895	485	.268 985	50 611	30		
	40	0.031 0231	485	5187	15	0.031 0380	486	.218 533	50 452	20		
	50	0716	484	5172	15	0866	485	.168 237	50 296	10		
			485		15		485		50 138			
47	0	0.031 1200		0.999 5157		0.031 1351		32.118 099		0	13	
	10	1685	485	5141	16	1836	485	.068 116	49 983	50		
	20	2169	484	5126	15	2322	486	.018 289	49 827	40		
	30	2654	485	5111	15	2807	485	.31.968 616	49 673	30		
	40	3138	484	5096	15	3292	485	.919 096	49 520	20		
	50	3623	485	5081	15	3777	486	.869 730	49 366	10		
			485		15		486		49 214			
48	0	0.031 4108		0.999 5066		0.031 4263		31.820 516		0	12	
	10	4592	484	5050	16	4748	485	.771 454	49 062	50		
	20	5077	485	5035	15	5233	486	.722 542	48 912	40		
	30	5561	484	5020	15	5719	485	.673 781	48 761	30		
	40	6046	485	5005	15	6204	486	.625 169	48 612	20		
	50	6530	484	4989	15	6689	485	.576 706	48 463	10		
			485		15		485		48 314			
49	0	0.031 7015		0.999 4974		0.031 7174		31.528 392		0	11	
	10	7500	485	4958	16	7660	486	.480 224	48 168	50		
	20	7984	484	4943	15	8145	485	.432 204	48 020	40		
	30	8469	485	4928	16	8630	486	.384 330	47 874	30		
	40	8953	484	4912	15	9116	485	.336 601	47 729	20		
	50	9438	485	4897	15	9601	486	.289 017	47 584	10		
			484		16		485		47 440			
50	0	0.031 9922		0.999 4881		0.032 0086		31.241 577		0	10	
		Cosine	Diff.	Sine	Diff.	Cotangent	Diff.	Tangent	Diff.	"	'	Proportional Parts

88° 10'

1° 50'

'	"	Sine	Diff.	Cosine	Diff.	Tangent	Diff.	Cotangent	Diff.			Proportional Parts
50	0	0.031 9922		0.999 4881		0.032 0086		31.241 577		0	10	Sine
	10	0.032 0407	485	4866	15	0572	486	.194 280	47 297	50		484 485 486
	20	0892	485	4850	16	1057	485	.147 127	47 153	40		1 48 4 48 5 48 6
	30	1376	484	4835	16	1542	485	.100 115	47 012	30		2 96 8 97 0 97 2
	40	1861	485	4819	16	2028	486	.053 246	46 869	20		3 145 2 145 5 145 8
	50	2345	484	4803	15	2513	485	.006 517	46 729	10		4 183 6 194 0 194 4
			485						46 589			5 242 0 242 5 243 0
51	0	0.032 2830		0.999 4788		0.032 2998		30.959 928		0	9	6 290 4 291 0 291 6
	10	3314	484	4772	16	3483	485	.913 479	46 449	50		7 338 8 339 5 340 2
	20	3799	485	4756	16	3969	486	.867 169	46 310	40		8 387 2 388 0 388 8
	30	4283	484	4741	16	4454	485	.820 998	46 171	30		9 435 6 436 5 437 4
	40	4768	485	4725	16	4939	486	.774 964	46 034	20		
	50	5253	484	4709	16	5425	485	.729 067	45 897	10		
									45 760			
52	0	0.032 5737		0.999 4693		0.032 5910		30.683 307		0	8	Cosine
	10	6222	485	4678	15	6395	485	.637 683	45 624	50		15 16 17
	20	6706	484	4662	16	6881	486	.592 194	45 489	40		1 1 5 1 6 1 7
	30	7191	485	4646	16	7366	485	.546 840	45 354	30		2 3 0 3 2 3 4
	40	7675	484	4630	16	7851	485	.501 620	45 220	20		3 4 5 4 8 5 1
	50	8160	485	4614	16	8337	486	.456 534	45 086	10		4 6 0 6 4 6 8
			484						44 954			5 7 5 8 0 8 5
53	0	0.032 8644		0.999 4598		0.032 8822		30.411 580		0	7	6 9 0 9 6 10 2
	10	9129	485	4582	16	9307	485	.366 759	44 821	50		7 10 5 11 2 11 9
	20	9614	484	4566	16	9793	486	.322 070	44 689	40		8 12 0 12 8 13 6
	30	0.033 0098	485	4550	16	0.033 0278	485	.277 512	44 558	30		9 13 5 14 4 15 3
	40	0583	484	4534	16	0763	486	.233 084	44 428	20		
	50	1067	485	4518	16	1249	485	.188 787	44 297	10		
									44 168			
54	0	0.033 1552		0.999 4502		0.033 1734		30.144 619		0	6	Tangent
	10	2036	484	4486	16	2220	486	.100 580	44 039	50		See columns above
	20	2521	485	4470	16	2705	485	.056 669	43 911	40		for sine
	30	3005	484	4454	16	3190	486	.012 886	43 783	30		
	40	3490	485	4438	16	3676	485	29.969 231	43 655	20		
	50	3975	484	4421	17	4161	486	.925 702	43 529	10		
									43 403			
55	0	0.033 4459		0.999 4406		0.033 4646		29.882 299		0	5	Cotangent
	10	4944	485	4389	16	5132	486	.839 021	43 278	50		47 000 46 000
	20	5428	484	4373	16	5617	485	.795 869	43 152	40		1 4 700 0 4 600 0
	30	5913	485	4357	16	6102	486	.752 841	43 028	30		2 9 400 0 9 200 0
	40	6397	484	4340	17	6588	485	.709 937	42 904	20		3 14 100 0 13 800 0
	50	6882	485	4324	16	7073	486	.667 157	42 780	10		4 18 800 0 18 400 0
			484						42 658			5 23 500 0 23 000 0
56	0	0.033 7366		0.999 4308		0.033 7558		29.624 499		0	4	6 28 200 0 27 600 0
	10	7851	485	4291	17	8044	486	.581 964	42 535	50		7 32 900 0 32 200 0
	20	8335	484	4275	16	8529	485	.539 551	42 413	40		8 37 600 0 36 800 0
	30	8820	485	4258	17	9015	486	.497 259	42 292	30		9 42 300 0 41 400 0
	40	9304	484	4242	16	9500	485	.455 088	42 171	20		
	50	9789	485	4226	17	9985	486	.413 037	42 051	10		
									41 931			
57	0	0.034 0274		0.999 4209		0.034 0471		29.371 106		0	3	45 000 44 000
	10	0758	484	4193	16	0956	485	.329 294	41 812	50		1 4 500 0 4 400 0
	20	1243	485	4176	17	1441	486	.287 600	41 694	40		2 9 000 0 8 800 0
	30	1727	484	4159	17	1927	485	.246 025	41 575	30		3 13 500 0 13 200 0
	40	2212	485	4143	16	2412	486	.204 568	41 457	20		4 18 000 0 17 600 0
	50	2696	484	4126	17	2898	485	.163 228	41 340	10		5 22 500 0 22 000 0
			485						41 223			6 27 000 0 26 400 0
58	0	0.034 3181		0.999 4110		0.034 3383		29.122 005		0	2	7 31 500 0 30 800 0
	10	3665	484	4093	17	3868	485	.080 898	41 107	50		8 36 000 0 35 200 0
	20	4150	485	4076	17	4354	486	.039 906	40 992	40		9 40 500 0 39 600 0
	30	4634	484	4060	16	4839	485	28.999 030	40 876	30		
	40	5119	485	4043	17	5325	486	.958 269	40 761	20		
	50	5603	484	4026	17	5810	485	.917 622	40 647	10		
			485						40 533			
59	0	0.034 6088		0.999 4009		0.034 6295		28.877 089		0	1	41 000 40 000
	10	6572	484	3993	16	6781	485	.836 669	40 420	50		1 4 100 0 4 000 0
	20	7057	485	3976	17	7266	486	.796 362	40 307	40		2 8 200 0 8 000 0
	30	7541	484	3959	17	7751	485	.756 167	40 195	30		3 12 300 0 12 000 0
	40	8026	485	3942	17	8237	486	.716 085	40 082	20		4 16 400 0 16 000 0
	50	8510	484	3925	17	8722	485	.676 114	39 971	10		5 20 500 0 20 000 0
			485						39 861			6 24 600 0 24 000 0
60	0	0.034 8995		0.999 3908		0.034 9208		28.636 253		0	0	7 28 700 0 28 000 0
												8 32 800 0 32 000 0
												9 36 900 0 36 000 0
		Cosine	Diff.	Sine	Diff.	Cotangent	Diff.	Tangent	Diff.	"	'	Proportional Parts

88° 00'

2° 00'

'	"	Sine	Diff.	Cosine	Diff.	Tangent	Diff.	Cotangent	Diff.			Proportional Parts
0	0	0.034 8995		0.999 3908		0.034 9208		28.636 253		0	60	
	10	9479	484	3891	17	9693	485	.596 504	39 749	50		Sine
	20	9964	485	3874	17	0.035 0179	486	.556 864	39 640	40		484 485 486
	30	0.035 0449	485	3857	17	0664	485	.517 334	39 530	30		1 48 4 48 5 48 6
	40	0933	484	3840	17	1149	485	.477 913	39 421	20		2 96 8 97 0 97 2
	50	1418	485	3823	17	1635	486	.438 601	39 312	10		3 145 2 145 5 145 8
			484				485		39 204			4 193 6 194 0 194 4
1	0	0.035 1902		0.999 3806		0.035 2120		28.399 397		0	59	
	10	2387	485	3789	17	2606	486	.360 301	39 096	50		5 242 0 242 5 243 0
	20	2871	484	3772	17	3091	485	.321 312	38 989	40		6 290 4 291 0 291 6
	30	3356	485	3755	17	3576	485	.282 430	38 882	30		7 338 8 339 5 340 2
	40	3840	484	3738	17	4062	486	.243 655	38 775	20		8 387 2 388 0 388 8
	50	4325	485	3721	17	4547	485	.204 985	38 670	10		9 435 6 436 5 437 4
			484				486		38 563			
2	0	0.035 4809		0.999 3704		0.035 5033		28.166 422		0	58	Cosine
	10	5294	485	3686	17	5518	485	.127 963	38 459	50		17 18 19
	20	5778	484	3669	17	6004	486	.089 609	38 354	40		1 1 7 1 8 1 9
	30	6263	485	3652	17	6489	485	.051 360	38 249	30		2 3 4 3 6 3 8
	40	6747	484	3635	17	6974	485	.013 214	38 146	20		3 5 1 5 4 5 7
	50	7232	485	3617	17	7460	486	27.975 172	38 042	10		4 6 8 7 2 7 6
			484				485		37 939			5 8 5 9 0 9 5
3	0	0.035 7716		0.999 3600		0.035 7945		27.937 233		0	57	
	10	8201	485	3583	17	8431	486	.899 397	37 836	50		6 10 2 10 8 11 4
	20	8685	484	3565	17	8916	485	.861 663	37 734	40		7 11 9 12 6 13 3
	30	9170	485	3548	17	9402	486	.824 030	37 633	30		8 13 6 14 4 15 2
	40	9654	484	3530	17	9887	485	.786 499	37 531	20		9 15 3 16 2 17 1
	50	0.036 0139	485	3513	17	0 036 0372	486	.749 069	37 430	10		
			484				485		37 329			
4	0	0.036 0623		0.999 3495		0.036 0858		27.711 740		0	56	Tangent
	10	1108	485	3478	17	1343	485	.674 511	37 229	50		See columns above for sine
	20	1592	484	3460	17	1829	486	.637 381	37 130	40		
	30	2077	485	3443	17	2314	485	.600 351	37 030	30		
	40	2561	484	3425	17	2800	486	.563 420	36 931	20		
	50	3046	485	3408	17	3285	485	.526 587	36 833	10		
			484				486		36 734			
5	0	0.036 3530		0.999 3390		0.036 3771		27.489 853		0	55	Cotangent
	10	4015	485	3372	17	4256	485	.453 216	36 637	50		40 000 39 000
	20	4499	484	3355	17	4742	486	.416 677	36 539	40		1 4 000 0 3 900 0
	30	4984	485	3337	17	5227	485	.380 235	36 442	30		2 8 000 0 7 800 0
	40	5468	484	3319	17	5712	486	.343 889	36 346	20		3 12 000 0 11 700 0
	50	5953	485	3302	17	6198	485	.307 640	36 249	10		4 16 000 0 15 600 0
			484				486		36 154			5 20 000 0 19 500 0
6	0	0.036 6437		0.999 3284		0.036 6683		27.271 486		0	54	
	10	6922	485	3266	17	7169	485	.235 428	36 058	50		6 24 000 0 23 400 0
	20	7406	484	3248	17	7654	486	.199 465	35 963	40		7 28 000 0 27 300 0
	30	7891	485	3231	17	8140	485	.163 597	35 868	30		8 32 000 0 31 200 0
	40	8375	484	3213	17	8625	486	.127 823	35 774	20		9 36 000 0 35 100 0
	50	8860	485	3195	17	9111	485	.092 143	35 680	10		
			484				486		35 586			
7	0	0.036 9344		0.999 3177		0.036 9596		27.056 557		0	53	
	10	9828	485	3159	17	0.037 0082	486	.021 064	35 493	50		
	20	0.037 0313	485	3141	17	0567	485	26.985 664	35 400	40		
	30	0797	484	3123	17	1053	486	.950 356	35 308	30		
	40	1282	485	3105	17	1538	485	.915 140	35 216	20		
	50	1766	484	3087	17	2024	486	.880 017	35 123	10		
			485				485		35 033			
8	0	0.037 2251		0.999 3069		0.037 2509		26.844 984		0	52	
	10	2735	484	3051	17	2995	485	.810 043	34 941	50		
	20	3220	485	3033	17	3480	486	.775 192	34 851	40		
	30	3704	484	3015	17	3966	485	.740 432	34 760	30		
	40	4189	485	2997	17	4451	486	.705 762	34 670	20		
	50	4673	484	2979	17	4937	485	.671 182	34 580	10		
			485				486		34 492			
9	0	0.037 5158		0.999 2960		0.037 5422		26.636 690		0	51	
	10	5642	484	2942	17	5908	485	.602 288	34 402	50		
	20	6127	485	2924	17	6393	486	.567 975	34 313	40		
	30	6611	484	2906	17	6879	485	.533 749	34 226	30		
	40	7096	485	2887	17	7364	486	.499 612	34 137	20		
	50	7580	484	2869	17	7850	485	.465 562	34 050	10		
			485				486		33 962			
10	0	0.037 8065		0.999 2851		0.037 8335		26.431 600		0	50	
		Cosine	Diff.	Sine	Diff.	Cotangent	Diff.	Tangent	Diff.	"	'	Proportional Parts

87° 50'

2° 10'

'	"	Sine	Diff.	Cosine	Diff.	Tangent	Diff.	Cotangent	Diff.			Proportional Parts
10	0	0.037 8065		0.999 2851		0.037 8335		26.431 600		0	50	
	10	8549	484	2832	19	8821	486	.397 724	33 876	50		
	20	9033	484	2814	18	9306	485	.363 935	33 789	40		
	30	9518	485	2796	18	9792	486	.330 232	33 703	30		
	40	0.038 0002	484	2777	19	0.038 0277	485	.296 615	33 617	20		
	50	0487	485	2759	18	0763	486	.263 084	33 531	10		
			484		19		485		33 446			
11	0	0.038 0971		0.999 2740		0.038 1248		26.229 638		0	49	
	10	1456	485	2722	18	1734	486	.196 277	33 361	50		
	20	1940	484	2703	19	2219	485	.163 001	33 276	40		
	30	2425	485	2685	18	2705	486	.129 809	33 192	30		
	40	2909	484	2666	19	3190	485	.096 701	33 108	20		
	50	3394	485	2648	18	3676	486	.063 677	33 024	10		
			484		19		485		32 941			
12	0	0.038 3878		0.999 2629		0.038 4161		26.030 736		0	48	
	10	4363	485	2611	18	4647	486	.25 997 878	32 858	50		
	20	4847	484	2592	19	5132	485	.965 103	32 775	40		
	30	5331	485	2573	18	5618	486	.932 410	32 693	30		
	40	5816	484	2555	19	6103	485	.899 799	32 611	20		
	50	6300	485	2536	18	6589	486	.867 270	32 529	10		
			484		19		485		32 447			
13	0	0.038 6785		0.999 2517		0.038 7074		25.834 823		0	47	
	10	7269	484	2498	19	7560	486	.802 456	32 367	50		
	20	7754	485	2480	18	8046	485	.770 171	32 285	40		
	30	8238	484	2461	19	8531	486	.737 966	32 205	30		
	40	8723	485	2442	18	9017	485	.705 842	32 124	20		
	50	9207	484	2423	19	9502	486	.673 797	32 045	10		
			485		19		485		31 965			
14	0	0.038 9692		0.999 2404		0.038 9988		25.641 832		0	46	
	10	0.039 0176	484	2385	19	0.039 0473	485	.609 947	31 885	50		
	20	0660	484	2366	19	0959	486	.578 140	31 807	40		
	30	1145	485	2347	18	1444	485	.546 413	31 727	30		
	40	1629	484	2328	19	1930	486	.514 764	31 649	20		
	50	2114	485	2309	18	2416	485	.483 193	31 571	10		
			484		19		486		31 493			
15	0	0.039 2598		0.999 2290		0.039 2901		25.451 700		0	45	
	10	3083	485	2271	19	3387	486	.420 284	31 416	50		
	20	3567	484	2252	19	3872	485	.388 946	31 338	40		
	30	4051	485	2233	18	4358	486	.357 685	31 261	30		
	40	4536	484	2214	19	4843	485	.326 501	31 184	20		
	50	5020	485	2195	18	5329	486	.295 393	31 108	10		
			484		19		485		31 032			
16	0	0.039 5505		0.999 2176		0.039 5814		25.264 361		0	44	
	10	5989	484	2157	19	6300	486	.233 406	30 955	50		
	20	6474	485	2137	20	6786	485	.202 526	30 880	40		
	30	6958	484	2118	19	7271	486	.171 721	30 805	30		
	40	7443	485	2099	18	7757	485	.140 992	30 729	20		
	50	7927	484	2080	20	8242	486	.110 337	30 655	10		
			485		19		485		30 580			
17	0	0.039 8411		0.999 2060		0.039 8728		25.079 757		0	43	
	10	8896	485	2041	19	9214	486	.049 251	30 506	50		
	20	9380	484	2022	20	9699	485	.018 819	30 432	40		
	30	9865	485	2002	19	0.040 0185	486	24.988 461	30 358	30		
	40	0.040 0349	484	1983	20	0670	485	.958 176	30 285	20		
	50	0834	485	1963	19	1156	486	.927 965	30 211	10		
			484		19		485		30 139			
18	0	0.040 1318		0.999 1944		0.040 1841		24.897 826		0	42	
	10	1802	484	1924	20	2127	486	.867 760	30 066	50		
	20	2287	485	1905	19	2613	485	.837 767	29 993	40		
	30	2771	484	1885	20	3098	486	.807 846	29 921	30		
	40	3256	485	1866	19	3584	485	.777 996	29 850	20		
	50	3740	484	1846	20	4069	486	.748 218	29 778	10		
			485		19		485		29 706			
19	0	0.040 4224		0.999 1827		0.040 4555		24.718 512		0	41	
	10	4709	485	1807	20	5041	486	.688 877	29 635	50		
	20	5193	484	1788	19	5526	485	.659 312	29 565	40		
	30	5678	485	1768	20	6012	486	.629 818	29 494	30		
	40	6162	484	1748	20	6498	485	.600 395	29 423	20		
	50	6647	485	1729	19	6983	486	.571 041	29 354	10		
			484		20		485		29 283			
20	0	0.040 7131		0.999 1709		0.040 7469		24.541 758		0	40	
		Cosine	Diff.	Sine	Diff.	Cotangent	Diff.	Tangent	Diff.	"	"	Proportional Parts

87° 40'

2° 20'

		Sine	Diff.	Cosine	Diff.	Tangent	Diff.	Cotangent	Diff.			Proportional Parts
20	0	0.040 7131	484	0.999 1709	20	0.040 7469	485	24.541 758	29 214	0	40	
	10	7615	484	1689	20	7954	486	.512 544	29 145	50		Sine
	20	8100	484	1669	20	8440	486	.483 399	29 075	40		484 485 486
	30	8584	484	1649	20	8926	485	.454 324	29 007	30		1 48 4 48 5 48 6
	40	9069	484	1630	19	9411	485	.425 317	28 938	20		2 96 8 97 0 97 2
	50	9553	484	1610	20	9897	486	.396 379	28 870	10		3 145 2 145 5 145 8
21	0	0.041 0037	485	0.999 1590	20	0.041 0383	485	24.367 509	28 801	0	39	4 193 6 194 0 194 4
	10	0522	484	1570	20	0868	486	.338 708	28 734	50		5 242 0 242 5 243 0
	20	1006	485	1550	20	1354	485	.309 974	28 666	40		6 290 4 291 0 291 6
	30	1491	484	1530	20	1839	486	.281 308	28 598	30		7 338 8 339 5 340 2
	40	1975	484	1510	20	2325	486	.252 710	28 532	20		8 387 2 388 0 388 8
	50	2459	485	1490	20	2811	485	.224 178	28 464	10		9 435 6 436 5 437 4
22	0	0.041 2944	484	0.999 1470	20	0.041 3296	486	24.195 714	28 398	0	38	Cosine
	10	3428	485	1450	20	3782	486	.167 316	28 331	50		19 20
	20	3913	484	1430	20	4268	485	.138 985	28 265	40		1 1 9 2 0
	30	4397	484	1410	20	4753	486	.110 720	28 199	30		2 3 8 4 0
	40	4881	485	1390	20	5239	486	.082 521	28 133	20		3 5 7 6 0
	50	5366	484	1370	20	5725	485	.054 388	28 068	10		4 7 6 8 0
23	0	0.041 5850	485	0.999 1350	20	0.041 6210	486	24.026 320	28 002	0	37	5 9 5 10 0
	10	6335	484	1330	21	6696	486	23.998 318	27 938	50		6 11 4 12 0
	20	6819	484	1309	20	7182	485	.970 380	27 872	40		7 13 3 14 0
	30	7303	485	1289	20	7667	486	.942 508	27 808	30		8 15 2 16 0
	40	7788	484	1269	20	8153	486	.914 700	27 744	20		9 17 1 18 0
	50	8272	485	1249	21	8639	485	.886 956	27 679	10		
24	0	0.041 8757	484	0.999 1228	20	0.041 9124	486	23.859 277	27 615	0	36	21 22
	10	9241	484	1208	20	9610	486	.831 662	27 552	50		1 2 1 2 2
	20	9725	485	1188	21	10096	486	.804 110	27 488	40		2 2 2 2 4
	30	0 042 0210	485	1167	20	0581	486	.776 622	27 424	30		3 3 3 3 6
	40	0694	484	1147	21	1067	486	.749 198	27 362	20		4 4 4 4 8
	50	1178	485	1126	20	1553	485	.721 836	27 299	10		5 10 5 11 0
25	0	0.042 1663	484	0.999 1106	20	0.042 2038	486	23.694 537	27 236	0	35	6 12 6 13 2
	10	2147	485	1086	21	2524	486	.667 301	27 174	50		7 14 7 15 4
	20	2632	484	1065	20	3010	485	.640 127	27 111	40		8 16 8 17 6
	30	3116	484	1045	21	3495	486	.613 016	27 050	30		9 18 9 19 8
	40	3600	485	1024	20	3981	486	.585 966	26 987	20		
	50	4085	484	1004	21	4467	485	.558 979	26 927	10		Tangent
26	0	0.042 4569	485	0.999 0983	21	0.042 4952	486	23.532 052	26 864	0	34	See columns above for sine
	10	5054	484	0962	20	5438	486	.505 188	26 804	50		Cotangent
	20	5538	484	0942	21	5924	485	.478 384	26 742	40		29 000 28 000
	30	6022	485	0921	20	6409	486	.451 642	26 682	30		1 2 900 0 2 800 0
	40	6507	484	0900	21	6895	486	.424 960	26 622	20		2 5 900 0 5 600 0
	50	6991	484	0880	21	7381	485	.398 338	26 561	10		3 8 700 0 8 400 0
27	0	0.042 7476	485	0.999 0859	21	0.042 7866	486	23.371 777	26 501	0	33	4 11 600 0 11 200 0
	10	7960	484	0838	20	8352	486	.345 276	26 441	50		5 14 500 0 14 000 0
	20	8444	484	0818	21	8838	486	.318 835	26 381	40		6 17 400 0 16 800 0
	30	8928	485	0797	20	9324	485	.292 454	26 322	30		7 20 300 0 19 600 0
	40	9413	484	0776	21	9809	486	.266 132	26 262	20		8 23 200 0 22 400 0
	50	9897	485	0755	21	0.043 0295	486	.239 870	26 204	10		9 26 100 0 25 200 0
28	0	0.043 0382	484	0.999 0734	21	0.043 0781	485	23.213 666	26 144	0	32	27 000 26 000
	10	0866	484	0713	20	1266	486	.187 522	26 086	50		1 2 700 0 2 600 0
	20	1350	485	0693	21	1752	486	.161 436	26 027	40		2 5 400 0 5 200 0
	30	1835	484	0672	20	2238	485	.135 409	25 969	30		3 8 100 0 7 800 0
	40	2319	484	0651	21	2724	486	.109 440	25 910	20		4 10 800 0 10 400 0
	50	2803	485	0630	21	3209	486	.083 530	25 853	10		5 13 500 0 13 000 0
29	0	0.043 3288	484	0.999 0609	21	0.043 3695	486	23.057 677	25 795	0	31	6 16 300 0 15 600 0
	10	3772	484	0588	20	4181	485	.031 882	25 738	50		7 18 900 0 18 200 0
	20	4256	485	0567	21	4666	486	.006 144	25 680	40		8 21 600 0 20 800 0
	30	4741	484	0546	22	5152	486	.954 841	25 623	30		9 24 300 0 23 400 0
	40	5225	485	0524	21	5638	486	.929 275	25 566	20		25 000
	50	5710	484	0503	21	6124	485		25 509	10		1 2 500 0
30	0	0.043 6194	0.999 0482	0.043 6609	22.903 766					0	30	2 5 000 0
												3 7 500 0
												4 10 000 0
												5 12 500 0
												6 15 000 0
												7 17 500 0
												8 20 000 0
												9 22 500 0
		Cosine	Diff.	Sine	Diff.	Cotangent	Diff.	Tangent	Diff.	"	"	Proportional Parts

87° 30'

2° 30'

	"	Sine	Diff.	Cosine	Diff.	Tangent	Diff.	Cotangent	Diff.			Proportional Parts
30	0	0.043 6194		0.999 0482		0.043 6809		22.903 766		0	30	
	10	6678	484	0461	21	7095	486	.878 313	25 453	50		
	20	7163	485	0440	21	7581	486	.852 917	25 396	40		
	30	7647	484	0419	21	8067	486	.827 576	25 341	30		
	40	8131	484	0397	22	8552	485	.802 292	25 284	20		
	50	8616	485	0376	21	9038	486	.777 064	25 228	10		
			484						25 172			
31	0	0.043 9100		0.999 0355		0.043 9524		22.751 892		0	29	Sine
	10	9584	484	0334	21	0010	486	.726 775	25 117	50		484 485 486
	20	0.044 0069	485	0312	22	0495	485	.701 713	25 062	40		1 48 4 48 5 48 6
	30	0553	484	0291	21	0981	486	.676 706	25 007	30		2 96 8 97 0 97 2
	40	1037	484	0270	22	1467	486	.651 754	24 952	20		3 145 2 145 5 145 8
	50	1522	485	0248	21	1953	486	.626 857	24 897	10		4 193 6 194 0 194 4
			484						24 842			5 242 0 242 5 243 0
32	0	0.044 2006		0.999 0227		0.044 2438		22.602 015		0	28	6 290 4 291 0 291 6
	10	2490	484	0205	22	2924	486	.577 227	24 788	50		7 338 8 339 5 340 2
	20	2975	485	0184	21	3410	486	.552 493	24 734	40		8 387 2 388 0 388 8
	30	3459	484	0162	22	3896	485	.527 813	24 680	30		9 435 6 436 5 437 4
	40	3943	484	0141	21	4381	486	.503 187	24 626	20		
	50	4428	485	0119	22	4867	486	.478 615	24 572	10		
			484						24 519			Cosine
33	0	0.044 4912		0.999 0098		0.044 5353		22.454 096		0	27	21 22 23
	10	5396	484	0076	22	5839	486	.429 630	24 466	50		1 2 1 2 2 2 3
	20	5881	485	0055	21	6325	486	.405 218	24 412	40		2 4 2 4 4 4 6
	30	6365	484	0033	22	6810	485	.380 859	24 359	30		3 6 3 6 6 6 9
	40	6849	484	0011	22	7296	486	.356 552	24 307	20		4 8 4 8 8 8 9
	50	7334	485	0.998 9990	21	7782	486	.332 298	24 254	10		5 10 5 11 0 11 5
			484						24 201			6 12 6 13 2 13 8
34	0	0.044 7818		0.998 9968		0.044 8268		22.308 097		0	26	7 14 7 15 4 16 1
	10	8302	484	9946	22	8754	486	.283 948	24 149	50		8 16 8 17 6 18 4
	20	8787	485	9924	22	9239	485	.259 850	24 098	40		9 18 9 19 8 20 7
	30	9271	484	9903	21	9725	486	.235 805	24 045	30		
	40	9755	484	9881	22	0.045 0211	486	.211 812	23 993	20		
	50	0.045 0240	485	9859	22	0697	486	.187 870	23 942	10		
			484						23 890			Tangent
35	0	0.045 0724		0.998 9837		0.045 1183		22.163 980		0	25	See columns above for sine
	10	1208	484	9815	22	1668	485	.140 141	23 839	50		Cotangent
	20	1693	485	9793	22	2154	486	.116 353	23 788	40		26 000 25 000
	30	2177	484	9772	21	2640	486	.092 617	23 736	30		1 2 600 0 2 500 0
	40	2661	484	9750	22	3126	486	.068 930	23 687	20		2 5 200 0 5 000 0
	50	3146	485	9728	22	3612	486	.045 295	23 635	10		3 7 800 0 7 500 0
			484						23 585			4 10 400 0 10 000 0
36	0	0.045 3630		0.998 9706		0.045 4097		22 021 710		0	24	5 13 000 0 12 500 0
	10	4114	484	9684	22	4583	486	.219 98 175	23 535	50		6 15 600 0 15 000 0
	20	4599	485	9662	22	5069	486	.974 691	23 484	40		7 18 200 0 17 500 0
	30	5083	484	9640	22	5555	486	.951 256	23 435	30		8 20 800 0 20 000 0
	40	5567	484	9618	23	6041	485	.927 872	23 384	20		9 23 400 0 22 500 0
	50	6051	484	9595	22	6526	485	.904 537	23 335	10		
			485						23 286			24 000 23 000
37	0	0.045 6536		0.998 9573		0.045 7012		21.881 251		0	23	1 2 400 0 2 300 0
	10	7020	484	9551	22	7498	486	.858 015	23 236	50		2 4 800 0 4 600 0
	20	7504	484	9529	22	7984	486	.834 828	23 187	40		3 7 200 0 6 900 0
	30	7989	485	9507	22	8470	486	.811 690	23 138	30		4 9 600 0 9 200 0
	40	8473	484	9485	23	8956	486	.788 601	23 089	20		5 12 000 0 11 500 0
	50	8957	484	9462	22	9441	485	.765 560	23 041	10		6 14 400 0 13 800 0
			485						22 991			7 16 800 0 16 100 0
38	0	0.045 9442		0.998 9440		0.045 9927		21.742 569		0	22	8 19 200 0 18 400 0
	10	9926	484	9418	22	0.046 0413	486	.719 625	22 944	50		9 21 600 0 20 700 0
	20	0.046 0410	484	9396	23	0899	486	.696 730	22 895	40		22 000
	30	0894	484	9373	22	1385	486	.673 883	22 847	30		1 2 200 0
	40	1379	485	9351	23	1871	486	.651 084	22 799	20		2 4 400 0
	50	1863	484	9328	22	2356	485	.628 333	22 751	10		3 6 600 0
									22 703			4 8 800 0
39	0	0.046 2347		0.998 9306		0.046 2842		21.605 630		0	21	5 11 000 0
	10	2832	485	9284	22	3328	486	.582 974	22 656	50		6 13 200 0
	20	3316	484	9261	23	3814	486	.560 365	22 609	40		7 15 400 0
	30	3800	484	9239	22	4300	486	.537 804	22 561	30		8 17 600 0
	40	4285	485	9216	23	4786	486	.515 289	22 515	20		9 19 800 0
	50	4769	484	9194	22	5272	485	.492 822	22 467	10		
									22 421			
40	0	0.046 5253		0.998 9171		0.046 5757		21.470 401		0	20	
		Cosine	Diff.	Sine	Diff.	Cotangent	Diff.	Tangent	Diff.	"	'	Proportional Parts

87° 20'

2° 40'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
40	0	0.046 5253		0.998 9171		0.046 5757		21.470 401		0	20	
	10	5737	484	9149	22	6243	486	.448 027	22 374		50	
	20	6222	485	9126	23	6729	486	.425 699	22 328		40	
	30	6706	484	9103	23	7215	486	.403 418	22 281		30	
	40	7190	484	9081	22	7701	486	.381 183	22 235		20	
	50	7675	485	9058	23	8187	486	.358 994	22 189		10	
			484		23		486		22 143			
41	0	0.046 8159		0.998 9035		0.046 8673		21.336 851		0	19	
	10	8643	484	9013	22	9159	486	.314 754	22 097		50	
	20	9127	484	8990	23	9644	485	.292 702	22 052		40	
	30	9612	485	8967	23	0.047 0130	486	.270 696	22 006		30	
	40	0.047 0096	484	8944	22	0616	486	.248 735	21 961		20	
	50	0580	485	8922	23	1102	486	.226 819	21 916		10	
			484		23		486		21 870			
42	0	0.047 1065		0.998 8899		0.047 1588		21.204 949		0	18	
	10	1549	484	8876	23	2074	486	.183 123	21 826		50	
	20	2033	484	8853	23	2560	486	.161 342	21 781		40	
	30	2517	484	8830	23	3046	486	.139 606	21 736		30	
	40	3002	485	8807	23	3532	486	.117 914	21 692		20	
	50	3486	484	8784	23	4018	486	.096 267	21 647		10	
			484		23		485		21 603			
43	0	0.047 3970		0.998 8761		0.047 4503		21.074 664		0	17	
	10	4454	484	8738	23	4989	486	.053 105	21 559		50	
	20	4939	485	8715	23	5475	486	.031 590	21 515		40	
	30	5423	484	8692	23	5961	486	.010 118	21 472		30	
	40	5907	484	8669	23	6447	486	20.988 691	21 427		20	
	50	6391	485	8646	23	6933	486	.967 307	21 384		10	
			484		23		486		21 341			
44	0	0.047 6876		0.998 8623		0.047 7419		20.945 966		0	16	
	10	7360	484	8600	23	7905	486	.924 669	21 297		50	
	20	7844	484	8577	23	8391	486	.903 415	21 254		40	
	30	8329	485	8554	23	8877	486	.882 204	21 211		30	
	40	8813	484	8530	24	9363	486	.861 036	21 168		20	
	50	9297	484	8507	23	9849	486	.839 910	21 126		10	
			484		23		485		21 082			
45	0	0.047 9781		0.998 8484		0.048 0334		20.818 828		0	15	
	10	0.048 0266	485	8461	23	0820	486	.797 787	21 041		50	
	20	0750	484	8437	23	1306	486	.776 790	20 997		40	
	30	1234	484	8414	23	1792	486	.755 834	20 956		30	
	40	1718	484	8391	23	2278	486	.734 921	20 913		20	
	50	2203	485	8367	24	2764	486	.714 049	20 872		10	
			484		23		486		20 829			
46	0	0.048 2687		0.998 8344		0.048 3250		20.693 220		0	14	
	10	3171	484	8320	24	3736	486	.672 432	20 788		50	
	20	3655	484	8297	23	4222	486	.651 686	20 746		40	
	30	4140	485	8274	23	4708	486	.630 981	20 705		30	
	40	4624	484	8250	24	5194	486	.610 318	20 663		20	
	50	5108	484	8227	24	5680	486	.589 696	20 622		10	
			484		24		486		20 581			
47	0	0.048 5592		0.998 8203		0.048 6166		20.569 115		0	13	
	10	6077	485	8179	24	6652	486	.548 575	20 540		50	
	20	6561	484	8156	23	7138	486	.528 076	20 499		40	
	30	7045	484	8132	24	7624	486	.507 617	20 459		30	
	40	7529	484	8109	23	8110	486	.487 200	20 417		20	
	50	8013	485	8085	24	8596	486	.466 823	20 377		10	
			484		24		486		20 337			
48	0	0.048 8498		0.998 8061		0.048 9082		20.446 486		0	12	
	10	8982	484	8038	23	9568	486	.426 190	20 296		50	
	20	9466	484	8014	24	0.049 0054	486	.405 933	20 257		40	
	30	9950	484	7990	24	0540	486	.385 717	20 216		30	
	40	0.049 0435	485	7966	23	1026	486	.365 541	20 176		20	
	50	0919	484	7943	24	1511	486	.345 404	20 137		10	
			484		24		486		20 096			
49	0	0.049 1403		0.998 7919		0.049 1997		20.325 308		0	11	
	10	1887	484	7895	24	2483	486	.305 258	20 058		50	
	20	2372	485	7871	24	2969	486	.285 232	20 018		40	
	30	2856	484	7847	24	3455	486	.265 254	19 978		30	
	40	3340	484	7823	24	3941	486	.245 315	19 939		20	
	50	3824	484	7799	24	4427	486	.225 415	19 900		10	
			484		24		486		19 862			
50	0	0.049 4308		0.998 7775		0.049 4913		20.205 553		0	10	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff.	"	'	Proportional Parts

87° 10'

2° 50'

'	"	Sine	Diff.	Cosine	Diff.	Tangent	Diff.	Cotangent	Diff.			Proportional Parts
50	0	0.049 4308		0.998 7775		0.049 4913		20.205 553		0	10	
	10	4793	485	7752	23	5399	486	.185 731	19 822	50		Sine
	20	5277	484	7728	25	5885	486	.165 948	19 783	40		484 485
	30	5761	484	7703	24	6371	486	.146 203	19 745	30		1 48 4 48 5
	40	6245	484	7679	24	6857	486	.126 496	19 707	20		2 98 8 97 0
	50	6730	485	7655	24	7343	486	.106 829	19 667	10		3 145 2 145 5
			484						19 630			4 193 6 194 0
51	0	0.049 7214		0.998 7631		0.049 7829		20.087 199		0	9	
	10	7698	484	7607	24	8316	487	.067 608	19 591	50		5 242 0 242 5
	20	8182	484	7583	24	8802	486	.048 054	19 554	40		6 290 4 291 0
	30	8666	484	7559	24	9288	486	.028 539	19 515	30		7 338 8 339 5
	40	9151	485	7535	24	9774	486	.009 061	19 478	20		8 387 2 388 0
	50	9635	484	7510	25	0.050 0260	486	19.989 622	19 439	10		9 435 6 436 5
			484						19 403			486 487
52	0	0.050 0119		0.998 7486		0.050 0746		19.970 219		0	8	
	10	0603	484	7462	24	1232	486	.950 855	19 364	50		1 48 6 48 7
	20	1087	484	7438	24	1718	486	.931 528	19 327	40		2 97 2 97 4
	30	1572	485	7413	25	2204	486	.912 238	19 290	30		3 145 8 146 1
	40	2056	484	7389	24	2690	486	.892 985	19 253	20		4 194 4 194 8
	50	2540	484	7365	25	3176	486	.873 770	19 215	10		5 243 0 243 5
			484						19 179			6 290 4 291 0
53	0	0.050 3024		0.998 7340		0.050 3662		19.854 591		0	7	
	10	3508	484	7316	24	4148	486	.835 450	19 141	50		Cosine
	20	3993	485	7291	25	4634	486	.816 345	19 105	40		23 24
	30	4477	484	7267	24	5120	486	.797 277	19 068	30		1 2 3 2 4
	40	4961	484	7243	24	5606	486	.778 245	19 032	20		2 4 6 4 8
	50	5445	484	7218	25	6092	486	.759 250	18 995	10		3 6 9 7 2
			484						18 959			4 9 2 9 6
54	0	0.050 5929		0.998 7194		0.050 6578		19.740 291		0	6	
	10	6414	485	7169	25	7064	486	.721 368	18 923	50		5 11 5 12 0
	20	6898	484	7144	25	7550	486	.702 482	18 886	40		6 13 8 14 4
	30	7382	484	7120	24	8036	486	.683 632	18 850	30		7 16 1 16 8
	40	7866	484	7095	25	8522	486	.664 817	18 815	20		8 18 4 19 2
	50	8350	484	7071	24	9008	486	.646 039	18 778	10		9 20 7 21 6
			485				487		18 743			25 26
55	0	0.050 8835		0.998 7046		0.050 9495		19.627 296		0	5	
	10	9319	484	7021	25	9981	486	.608 589	18 707	50		1 2 5 2 8
	20	9803	484	6997	25	0.051 0467	486	.589 917	18 672	40		2 5 0 5 2
	30	0.051 0287	484	6972	25	0.051 0953	486	.571 281	18 636	30		3 7 5 7 8
	40	0771	484	6947	25	1439	486	.552 680	18 601	20		4 10 0 10 4
	50	1255	485	6922	24	1925	486	.534 114	18 566	10		5 12 5 13 0
			485						18 530			6 15 0 15 6
56	0	0.051 1740		0.998 6898		0.051 2411		19.515 584		0	4	
	10	2224	484	6873	25	2897	486	.497 088	18 496	50		7 17 5 18 2
	20	2708	484	6848	25	3383	486	.478 628	18 460	40		8 20 0 20 8
	30	3192	484	6823	25	3869	486	.460 202	18 426	30		9 22 5 23 4
	40	3676	484	6798	25	4355	486	.441 811	18 391	20		
	50	4161	485	6773	25	4841	486	.423 455	18 356	10		
			484				487		18 322			Tangent
57	0	0.051 4645		0.998 6748		0.051 5328		19.405 133		0	3	
	10	5129	484	6723	25	5814	486	.386 845	18 288	50		See columns above for sine
	20	5613	484	6698	25	6300	486	.368 592	18 253	40		Cotangent
	30	6097	484	6673	25	6786	486	.350 373	18 219	30		20 000 19 000
	40	6581	484	6648	25	7272	486	.332 189	18 184	20		1 2 000 0 1 900 0
	50	7066	485	6623	25	7758	486	.314 038	18 151	10		2 4 000 0 3 800 0
			484						18 116			3 6 000 0 5 700 0
58	0	0.051 7550		0.998 6598		0.051 8244		19.295 922		0	2	
	10	8034	484	6573	25	8730	486	.277 839	18 083	50		4 8 000 0 7 600 0
	20	8518	484	6548	25	9216	486	.259 790	18 049	40		5 10 000 0 9 500 0
	30	9002	484	6523	25	9703	487	.241 775	18 015	30		6 12 000 0 11 400 0
	40	9486	484	6498	26	0.052 0189	486	.223 793	17 982	20		7 14 000 0 13 300 0
	50	9970	485	6472	25	0.052 0675	486	.205 845	17 948	10		8 16 000 0 15 200 0
			485						17 915			9 18 000 0 17 100 0
59	0	0.052 0455		0.998 6447		0.052 1161		19.187 930		0	1	
	10	0939	484	6422	25	1647	486	.170 048	17 882	50		18 000 17 000
	20	1423	484	6397	26	2133	486	.152 200	17 848	40		1 1 800 0 1 700 0
	30	1907	484	6371	25	2619	487	.134 385	17 815	30		2 3 600 0 3 400 0
	40	2391	484	6346	25	3106	486	.116 602	17 783	20		3 5 400 0 5 100 0
	50	2875	485	6321	26	3592	486	.098 853	17 749	10		4 7 200 0 6 800 0
			485						17 716			5 9 000 0 8 500 0
60	0	0.052 3360		0.998 6295		0.052 4078		19.081 137		0	0	
												6 10 800 0 10 200 0
												7 12 600 0 11 900 0
												8 14 400 0 13 600 0
												9 16 200 0 15 300 0
												Proportional Parts
		Cosine	Diff.	Sine	Diff.	Cotangent	Diff.	Tangent	Diff.	"	'	Proportional Parts

87° 00'

3° 00'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff.			Proportional Parts
0	0	0.052 3360	484	0.998 6295	25	0.052 4078	486	19.081 137	17 684	0	60	
	10	3844	484	6270	25	4564	486	.063 453	17 651	50		
	20	4328	484	6245	26	5050	486	.045 802	17 619	40		
	30	4812	484	6219	25	5536	486	.028 183	17 586	30		
	40	5296	484	6194	26	6022	487	.010 597	17 553	20		
	50	5780	484	6168	25	6509	486	18.993 044	17 521	10		
1	0	0.052 6284	485	0.998 6143	26	0.052 6995	486	18.975 523	17 490	0	59	Sine
	10	6749	484	6117	25	7481	486	.958 033	17 456	50		484 485
	20	7233	484	6092	26	7967	486	.940 577	17 425	40		1 48 4 48 5
	30	7717	484	6066	26	8453	486	.923 152	17 393	30		2 96 8 97 0
	40	8201	484	6040	25	8939	486	.905 759	17 362	20		3 145 2 145 5
	50	8685	484	6015	26	9426	487	.888 397	17 329	10		4 193 6 194 0
2	0	0.052 9169	484	0.998 5989	25	0.052 9912	486	18.871 068	17 298	0	58	5 242 0 242 5
	10	9653	485	5964	26	0.053 0398	486	.853 770	17 266	50		6 290 4 291 0
	20	0.053 0138	484	5938	26	0884	486	.836 504	17 234	40		7 338 8 339 5
	30	0622	484	5912	26	1370	486	.819 270	17 204	30		8 387 2 388 0
	40	1106	484	5886	25	1856	486	.802 066	17 171	20		9 435 6 436 5
	50	1590	484	5861	26	2343	487	.784 895	17 141	10		
3	0	0.053 2074	484	0.998 5835	26	0.053 2829	486	18.767 754	17 109	0	57	Cosine
	10	2558	484	5809	26	3315	486	.750 645	17 079	50		25 26 27
	20	3042	484	5783	26	3801	486	.733 566	17 049	40		1 2 5 2 6 2 7
	30	3526	485	5757	26	4287	486	.716 519	17 017	30		2 5 0 5 2 5 4
	40	4011	484	5731	26	4774	487	.699 502	16 985	20		3 7 5 7 8 8 1
	50	4495	484	5706	26	5260	486	.682 517	16 955	10		4 10 0 10 4 10 8
4	0	0.053 4979	484	0.998 5680	26	0.053 5746	486	18.665 562	16 924	0	56	5 12 5 13 0 13 5
	10	5463	484	5654	26	6232	486	.648 638	16 894	50		6 15 0 15 6 16 2
	20	5947	484	5628	26	6718	487	.631 744	16 863	40		7 17 5 18 2 18 9
	30	6431	484	5602	26	7205	486	.614 881	16 833	30		8 20 0 20 8 21 6
	40	6915	484	5576	26	7691	486	.598 048	16 802	20		9 22 5 23 4 24 3
	50	7399	484	5550	26	8177	486	.581 246	16 773	10		
5	0	0.053 7883	485	0.998 5524	26	0.053 8663	486	18.564 473	16 742	0	55	Tangent
	10	8368	484	5498	27	9149	486	.547 731	16 712	50		See columns above for sine
	20	8852	484	5471	26	9636	486	.531 019	16 681	40		
	30	9336	484	5445	26	0.054 0122	486	.514 338	16 652	30		
	40	9820	484	5419	26	0608	486	.497 686	16 623	20		
	50	0.054 0304	484	5393	26	1094	487	.481 063	16 592	10		
6	0	0.054 0788	484	0.998 5367	27	0.054 1581	486	18.464 471	16 563	0	54	Cotangent
	10	1272	484	5340	26	2067	486	.447 908	16 533	50		18 000 17 000
	20	1756	484	5314	26	2553	486	.431 375	16 504	40		1 1 800 0 1 700 0
	30	2240	484	5288	26	3039	486	.414 871	16 474	30		2 3 600 0 3 400 0
	40	2725	485	5262	27	3526	487	.398 397	16 445	20		3 5 400 0 5 100 0
	50	3209	484	5235	26	4012	486	.381 952	16 415	10		4 7 200 0 6 800 0
7	0	0.054 3693	484	0.998 5209	26	0.054 4498	486	18.365 537	16 386	0	53	5 9 000 0 8 500 0
	10	4177	484	5183	26	4984	486	.349 151	16 358	50		6 10 800 0 10 200 0
	20	4661	484	5156	27	5471	487	.332 793	16 328	40		7 12 600 0 11 900 0
	30	5145	484	5130	26	5957	486	.316 465	16 299	30		8 14 400 0 13 600 0
	40	5629	484	5103	27	6443	486	.300 166	16 270	20		9 16 200 0 15 300 0
	50	6113	484	5077	27	6929	487	.283 896	16 242	10		
8	0	0.054 6597	484	0.998 5050	26	0.054 7416	486	18.267 654	16 212	0	52	
	10	7081	484	5024	26	7902	486	.251 442	16 184	50		16 000 15 000
	20	7565	485	4997	27	8388	486	.235 258	16 156	40		1 1 800 0 1 500 0
	30	8050	484	4971	27	8874	487	.219 102	16 127	30		2 3 200 0 3 000 0
	40	8534	484	4944	27	9361	486	.202 975	16 098	20		3 4 800 0 4 500 0
	50	9018	484	4918	26	9847	486	.186 877	16 070	10		4 6 400 0 6 000 0
9	0	0.054 9502	484	0.998 4891	27	0.055 0333	487	18.170 807	16 042	0	51	5 8 000 0 7 500 0
	10	9986	484	4864	26	0820	486	.154 765	16 014	50		6 9 600 0 9 000 0
	20	0.055 0470	484	4838	27	1306	486	.138 751	15 985	40		7 11 200 0 10 500 0
	30	0954	484	4811	27	1792	486	.122 766	15 958	30		8 12 800 0 12 000 0
	40	1438	484	4784	27	2278	487	.106 808	15 929	20		9 14 400 0 13 500 0
	50	1922	484	4757	26	2765	486	.090 879	15 902	10		
10	0	0.055 2406		0.998 4731		0.055 3251		18.074 977		0	50	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

86° 50'

3° 10'

'	"	Sine	Diff.	Cosine	Diff.	Tangent	Diff.	Cotangent	Diff.			Proportional Parts
10	0	0.055 2408		0.998 4731		0.055 3251		18.074 977		0	50	
	10	2890	484	4704	27	3737	486	.059 104	15 873	50		Sine
	20	3374	484	4677	27	4224	487	.043 258	15 846	40		484 485
	30	3858	484	4650	27	4710	486	.027 440	15 818	30		1 48 4 48 5
	40	4343	485	4623	26	5196	486	.011 649	15 791	20		2 96 8 97 0
	50	4827	484	4597	27	5683	487	17.995 886	15 763	10		3 145 2 145 5
			484				486		15 736			4 193 6 194 0
11	0	0.055 5311		0.998 4570		0.055 6169		17.980 150		0	49	
	10	5795	484	4543	27	6655	486	.964 442	15 708	50		5 242 0 242 5
	20	6279	484	4516	27	7142	487	.948 762	15 680	40		6 290 4 291 0
	30	6763	484	4489	27	7628	486	.933 108	15 654	30		7 338 8 339 5
	40	7247	484	4462	27	8114	486	.917 424	15 626	20		8 387 2 388 0
	50	7731	484	4435	27	8600	486	.901 883	15 599	10		9 435 6 436 5
			484				487		15 573			486 487
12	0	0.055 8215		0.998 4408		0.055 9087		17.886 310		0	48	
	10	8699	484	4381	27	9573	486	.870 765	15 545	50		1 48 6 48 7
	20	9183	484	4353	28	0.056 0059	486	.855 247	15 518	40		2 97 2 97 4
	30	9667	484	4326	27	0546	487	.839 756	15 491	30		3 145 8 146 1
	40	0.056 0151	484	4299	27	1032	486	.824 291	15 465	20		4 194 4 194 8
	50	0635	484	4272	27	1518	486	.808 853	15 438	10		5 243 0 243 5
			484				487		15 411			6 291 6 292 2
13	0	0.056 1119		0.998 4245		0.056 2005		17.793 442		0	47	
	10	1603	484	4218	27	2491	486	.778 057	15 385	50		7 340 2 340 9
	20	2087	484	4190	28	2978	487	.762 699	15 358	40		8 388 8 389 6
	30	2572	485	4163	27	3464	486	.747 367	15 332	30		9 437 4 438 3
	40	3056	484	4136	27	3950	486	.732 061	15 306	20		
	50	3540	484	4109	27	4437	487	.716 782	15 279	10		Cosine
			484				486		15 253			26 27 28
14	0	0.056 4024		0.998 4081		0.056 4923		17.701 529		0	46	
	10	4508	484	4054	27	5409	486	.686 303	15 226	50		1 2 6 2 7 2 8
	20	4992	484	4026	28	5896	487	.671 102	15 201	40		2 5 2 5 4 5 6
	30	5476	484	3999	27	6382	486	.655 927	15 175	30		3 7 8 8 1 8 4
	40	5960	484	3972	27	6868	486	.640 779	15 148	20		4 10 4 10 8 11 2
	50	6444	484	3944	27	7355	487	.625 656	15 123	10		5 13 0 13 5 14 0
			484				486		15 097			6 15 6 16 2 16 8
15	0	0.056 6928		0.998 3917		0.056 7841		17.610 569		0	45	
	10	7412	484	3889	28	8328	487	.595 488	15 071	50		7 18 2 18 9 19 6
	20	7896	484	3862	27	8814	486	.580 442	15 046	40		8 20 8 21 6 22 4
	30	8380	484	3834	27	9300	486	.565 422	15 020	30		9 23 4 24 3 25 2
	40	8864	484	3807	28	9787	487	.550 428	14 994	20		
	50	9348	484	3779	28	0.057 0273	486	.535 459	14 969	10		Tangent
			484				486		14 943			See columns above for sine
16	0	0.056 9832		0.998 3751		0.057 0759		17.520 516		0	44	
	10	0.057 0316	484	3724	27	1246	487	.505 597	14 919	50		Cotangent
	20	0800	484	3696	28	1732	486	.490 705	14 892	40		16 000 15 000
	30	1284	484	3668	28	2219	487	.475 837	14 868	30		1 1 600 0 1 500 0
	40	1768	484	3641	27	2705	486	.460 995	14 842	20		2 3 200 0 3 000 0
	50	2252	484	3613	28	3191	486	.446 178	14 817	10		3 4 800 0 4 500 0
			484				487		14 793			4 6 400 0 6 000 0
17	0	0.057 2736		0.998 3585		0.057 3678		17.431 385		0	43	
	10	3220	484	3557	28	4164	486	.416 618	14 767	50		5 8 000 0 7 500 0
	20	3704	484	3530	27	4651	487	.401 876	14 742	40		6 9 600 0 9 000 0
	30	4188	484	3502	27	5137	486	.387 158	14 718	30		7 11 200 0 10 500 0
	40	4672	484	3474	28	5624	487	.372 466	14 692	20		8 12 800 0 12 000 0
	50	5156	484	3446	28	6110	486	.357 798	14 668	10		9 14 400 0 13 500 0
			484				486		14 643			14 000
18	0	0.057 5640		0.998 3418		0.057 6596		17.343 155		0	42	
	10	6124	484	3390	28	7083	487	.328 536	14 619	50		1 1 400 0
	20	6608	484	3362	28	7569	486	.313 942	14 594	40		2 2 800 0
	30	7092	484	3334	28	8056	487	.299 372	14 570	30		3 4 200 0
	40	7576	484	3306	28	8542	486	.284 827	14 545	20		4 5 600 0
	50	8060	484	3278	28	9029	487	.270 306	14 521	10		5 7 000 0
			484				486		14 496			6 8 400 0
19	0	0.057 8544		0.998 3250		0.057 9615		17.255 810		0	41	
	10	9028	484	3222	28	0.058 0001	486	.241 337	14 473	50		7 9 800 0
	20	9512	484	3194	28	0488	487	.226 889	14 448	40		8 11 200 0
	30	9996	484	3166	28	0974	486	.212 465	14 424	30		9 12 600 0
	40	0.058 0480	484	3138	28	1461	487	.198 065	14 400	20		
	50	0964	484	3110	28	1947	486	.183 689	14 376	10		
			484				487		14 352			
20	0	0.058 1448		0.998 3082		0.058 2434		17.169 337		0	40	
		Cosine	Diff.	Sine	Diff.	Cotangent	Diff.	Tangent	Diff.	"	'	Proportional Parts

86° 40'

3° 20'

'	"	Sine	Diff.	Cosine	Diff.	Tangent	Diff.	Cotangent	Diff.			Proportional Parts
20	0	0.058 1448		0.998 3082		0.058 2434		17.169 337		0	40	
	10	1932	484	3053	29	2920	486	.155 009	14 328	50		
	20	2416	484	3025	28	3407	487	.140 704	14 305	40		
	30	2900	484	2997	28	3893	486	.126 424	14 280	30		
	40	3384	484	2969	28	4380	487	.112 167	14 257	20		
	50	3868	484	2940	29	4866	486	.097 934	14 233	10		
			484		28		486		14 210			
21	0	0.058 4352		0.998 2912		0.058 5352		17.083 724		0	39	
	10	4836	484	2884	28	5839	487	.069 538	14 186	50		
	20	5320	484	2855	29	6325	486	.055 375	14 163	40		
	30	5804	484	2827	28	6812	487	.041 236	14 139	30		
	40	6288	484	2799	28	7298	486	.027 120	14 116	20		
	50	6772	484	2770	29	7785	487	.013 027	14 093	10		
			484		28		486		14 070			
22	0	0.058 7256		0.998 2742		0.058 8271		16.998 957		0	38	
	10	7740	484	2713	29	8758	487	.984 911	14 046	50		
	20	8224	484	2685	28	9244	486	.970 888	14 023	40		
	30	8708	484	2656	29	9731	487	.956 888	14 000	30		
	40	9192	484	2628	28	0.059 0217	486	.942 911	13 977	20		
	50	9676	484	2599	29	0704	487	.928 956	13 955	10		
			484		28		486		13 931			
23	0	0.059 0160		0.998 2570		0.059 1190		16.915 025		0	37	
	10	0644	484	2542	28	1677	487	.901 117	13 908	50		
	20	1128	484	2513	29	2163	486	.887 231	13 886	40		
	30	1612	484	2484	28	2650	487	.873 368	13 863	30		
	40	2096	484	2456	29	3136	486	.859 528	13 840	20		
	50	2580	484	2427	28	3623	487	.845 710	13 818	10		
			484		29		486		13 795			
24	0	0.059 3064		0.998 2398		0.059 4109		16.831 915		0	36	
	10	3548	484	2370	28	4596	487	.818 142	13 773	50		
	20	4032	484	2341	29	5083	487	.804 392	13 750	40		
	30	4516	484	2312	29	5569	486	.790 664	13 728	30		
	40	5000	484	2283	29	6056	487	.776 959	13 705	20		
	50	5484	483	2254	29	6542	486	.763 275	13 684	10		
			483		29		487		13 661			
25	0	0.059 5967		0.998 2225		0.059 7029		16.749 614		0	35	
	10	6451	484	2196	29	7515	486	.735 976	13 638	50		
	20	6935	484	2168	28	8002	487	.722 359	13 617	40		
	30	7419	484	2139	29	8488	486	.708 764	13 595	30		
	40	7903	484	2110	29	8975	487	.695 192	13 572	20		
	50	8387	484	2081	29	9461	486	.681 641	13 551	10		
			484		29		487		13 529			
26	0	0.059 8871		0.998 2052		0.059 9948		16.668 112		0	34	
	10	9355	484	2023	30	0.060 0435	487	.654 605	13 507	50		
	20	9839	484	1993	29	0921	486	.641 120	13 485	40		
	30	0.060 0323	484	1964	29	1408	487	.627 656	13 464	30		
	40	0807	484	1935	29	1894	486	.614 215	13 441	20		
	50	1291	484	1906	29	2381	487	.600 795	13 420	10		
			484		29		486		13 399			
27	0	0.060 1775		0.998 1877		0.060 2867		16.587 396		0	33	
	10	2259	484	1848	29	3354	487	.574 019	13 377	50		
	20	2743	484	1819	30	3841	487	.560 664	13 355	40		
	30	3227	484	1789	29	4327	486	.547 330	13 334	30		
	40	3711	484	1760	29	4814	487	.534 017	13 313	20		
	50	4194	483	1731	29	5300	486	.520 726	13 291	10		
			484		30		487		13 270			
28	0	0.060 4678		0.998 1701		0.060 5787		16.507 456		0	32	
	10	5162	484	1672	29	6273	486	.494 207	13 249	50		
	20	5646	484	1643	30	6760	487	.480 979	13 228	40		
	30	6130	484	1613	29	7247	487	.467 772	13 207	30		
	40	6614	484	1584	29	7733	486	.454 587	13 185	20		
	50	7098	484	1555	30	8220	487	.441 422	13 165	10		
			484				486		13 143			
29	0	0.060 7582		0.998 1525		0.060 8706		16.428 279		0	31	
	10	8066	484	1496	29	9193	487	.415 156	13 123	50		
	20	8550	484	1466	30	9680	487	.402 055	13 101	40		
	30	9034	484	1437	29	0.061 0166	486	.388 974	13 081	30		
	40	9518	484	1407	30	0653	487	.375 914	13 060	20		
	50	0.061 0001	483	1378	29	1140	487	.362 874	13 040	10		
			484		30		486		13 019			
30	0	0.061 0485		0.998 1348		0.061 1626		16.349 855		0	30	
		Cosine	Diff.	Sine	Diff.	Cotangent	Diff.	Tangent	Diff.	"	'	Proportional Parts

86° 30'

3° 30'

'	"	Sine	Diff	Cosine	Diff.	Tangent	Diff.	Cotangent	Diff.			Proportional Parts
30	0	0.061 0485		0.998 1348		0.061 1626		16.349 855		0	30	
	10	0969	484	1318	30	2113	487	.336 857	12 998	50		
	20	1453	484	1289	29	2599	486	.323 880	12 977	40		
	30	1937	484	1259	30	3086	487	.310 923	12 957	30		
	40	2421	484	1229	30	3573	487	.297 986	12 937	20		
	50	2905	484	1200	29	4059	486	.285 070	12 916	10		
			484		30		487		12 896			
31	0	0.061 3389		0.998 1170		0.061 4546		16.272 174		0	29	
	10	3873	484	1140	30	5033	487	.259 299	12 875	50		
	20	4357	484	1110	30	5519	486	.246 444	12 855	40		
	30	4841	484	1081	29	6006	487	.233 609	12 835	30		
	40	5324	483	1051	30	6493	487	.220 794	12 815	20		
	50	5808	484	1021	29	6979	486	.208 000	12 794	10		
			484		30		487		12 775			
32	0	0.061 6292		0.998 0991		0.061 7486		16.195 225		0	28	
	10	6776	484	0961	30	7953	487	.182 471	12 754	50		
	20	7260	484	0931	30	8439	486	.169 737	12 734	40		
	30	7744	484	0901	30	8926	487	.157 022	12 715	30		
	40	8228	484	0871	30	9413	487	.144 327	12 695	20		
	50	8712	484	0841	30	9899	486	.131 653	12 674	10		
			484		30		487		12 655			
33	0	0.061 9196		0.998 0811		0.062 0386		16.118 998		0	27	
	10	9679	483	0781	30	0873	487	.106 363	12 635	50		
	20	0.062 0163	484	0751	30	1359	486	.093 747	12 616	40		
	30	0647	484	0721	30	1846	487	.081 152	12 595	30		
	40	1131	484	0691	30	2333	487	.068 575	12 577	20		
	50	1615	484	0661	30	2819	486	.056 019	12 556	10		
			484		30		487		12 537			
34	0	0.062 2099		0.998 0631		0.062 3306		16.043 482		0	26	
	10	2583	484	0601	30	3793	487	.030 964	12 518	50		
	20	3067	484	0571	30	4279	486	.018 466	12 498	40		
	30	3550	483	0540	31	4766	487	.005 988	12 478	30		
	40	4034	484	0510	30	5253	487	15 993 528	12 460	20		
	50	4518	484	0480	30	5740	487	.981 088	12 440	10		
			484		30		486		12 421			
35	0	0.062 5002		0.998 0450		0.062 6226		15.968 667		0	25	
	10	5486	484	0419	31	6713	487	.956 266	12 401	50		
	20	5970	484	0389	30	7200	487	.943 884	12 382	40		
	30	6454	484	0359	31	7686	486	.931 520	12 364	30		
	40	6937	483	0328	31	8173	487	.919 176	12 344	20		
	50	7421	484	0298	30	8660	487	.906 851	12 325	10		
			484		31		487		12 306			
36	0	0.062 7905		0.998 0267		0.062 9147		15.894 545		0	24	
	10	8389	484	0237	30	9633	486	.882 258	12 287	50		
	20	8873	484	0206	30	0.063 0120	487	.869 989	12 269	40		
	30	9357	484	0176	30	0607	487	.857 740	12 249	30		
	40	9841	484	0145	31	1094	487	.845 509	12 231	20		
	50	0.063 0324	483	0115	31	1580	486	.833 298	12 211	10		
			484		31		487		12 193			
37	0	0.063 0808		0.998 0084		0.063 2067		15.821 105		0	23	
	10	1292	484	0054	30	2554	487	.808 930	12 175	50		
	20	1776	484	0023	31	3041	487	.796 774	12 156	40		
	30	2260	484	9992	31	3527	486	.784 637	12 137	30		
	40	2744	484	9962	30	4014	487	.772 519	12 118	20		
	50	3228	484	9931	31	4501	487	.760 419	12 100	10		
			483		31		487		12 082			
38	0	0.063 3711		0.997 9900		0.063 4988		15.748 337		0	22	
	10	4195	484	9870	30	5474	486	.736 274	12 063	50		
	20	4679	484	9839	31	5961	487	.724 229	12 045	40		
	30	5163	484	9808	31	6448	487	.712 203	12 026	30		
	40	5647	484	9777	31	6935	487	.700 195	12 008	20		
	50	6131	483	9746	30	7422	486	.688 205	11 990	10		
					30				11 972			
39	0	0.063 6614		0.997 9718		0.063 7908		15.676 233		0	21	
	10	7098	484	9685	31	8395	487	.664 280	11 953	50		
	20	7582	484	9654	31	8882	487	.652 345	11 935	40		
	30	8066	484	9623	31	9369	487	.640 427	11 918	30		
	40	8550	484	9592	31	9856	487	.628 528	11 899	20		
	50	9034	483	9561	31	0.064 0342	486	.616 647	11 881	10		
					31		487		11 863			
40	0	0.063 9517		0.997 9530		0.064 0829		15.604 784		0	20	
		Cosine	Diff	Sine	Diff.	Cotangent	Diff.	Tangent	Diff.	"	'	Proportional Parts

86° 20'

3° 40'

'	"	Sine	Diff.	Cosine	Diff.	Tangent	Diff.	Cotangent	Diff.			Proportional Parts
40	0	0.063 9517		0.997 9530		0.064 0829		15.604 784		0	20	
	10	0.064 0001	484	0.997 9499	31	0.064 1316	487	.592 939	11 845	50		
	20	0.064 0485	484	0.997 9468	31	0.064 1803	487	.581 112	11 827	40		
	30	0.064 0969	484	0.997 9437	31	0.064 2290	487	.569 302	11 810	30		
	40	0.064 1453	484	0.997 9406	31	0.064 2776	486	.557 511	11 791	20		
	50	0.064 1936	483	0.997 9375	31	0.064 3263	487	.545 737	11 774	10		
			484		32		487		11 756			
41	0	0.064 2420		0.997 9343		0.064 3750		15.533 981		0	19	
	10	0.064 2904	484	0.997 9312	31	0.064 4237	487	.522 242	11 739	50		
	20	0.064 3388	484	0.997 9281	31	0.064 4724	487	.510 521	11 721	40		
	30	0.064 3872	484	0.997 9250	31	0.064 5210	486	.498 818	11 703	30		
	40	0.064 4355	483	0.997 9219	32	0.064 5697	487	.487 133	11 685	20		
	50	0.064 4839	484	0.997 9187	31	0.064 6184	487	.475 465	11 668	10		
			484		31		487		11 651			
42	0	0.064 5323		0.997 9156		0.064 6671		15.463 814		0	18	
	10	0.064 5807	484	0.997 9125	31	0.064 7158	487	.452 181	11 633	50		
	20	0.064 6291	484	0.997 9094	31	0.064 7645	487	.440 565	11 616	40		
	30	0.064 6774	483	0.997 9062	32	0.064 8132	487	.428 967	11 598	30		
	40	0.064 7258	484	0.997 9031	31	0.064 8618	486	.417 386	11 581	20		
	50	0.064 7742	484	0.997 8999	32	0.064 9105	487	.405 822	11 564	10		
			484		31		487		11 546			
43	0	0.064 8226		0.997 8968		0.064 9592		15.394 276		0	17	
	10	0.064 8710	484	0.997 8937	31	0.064 10079	487	.382 747	11 529	50		
	20	0.064 9193	483	0.997 8905	32	0.064 10566	487	.371 235	11 512	40		
	30	0.064 9677	484	0.997 8874	31	0.064 11053	487	.359 740	11 495	30		
	40	0.064 10161	484	0.997 8842	32	0.064 11540	487	.348 262	11 478	20		
	50	0.064 10645	484	0.997 8811	32	0.064 12026	486	.336 802	11 460	10		
			484		31		487		11 444			
44	0	0.065 1129		0.997 8779		0.065 2513		15.325 358		0	16	
	10	0.065 1612	483	0.997 8747	32	0.065 3000	487	.313 931	11 427	50		
	20	0.065 2096	484	0.997 8716	31	0.065 3487	487	.302 522	11 409	40		
	30	0.065 2580	484	0.997 8684	32	0.065 3974	487	.291 129	11 393	30		
	40	0.065 3064	484	0.997 8653	31	0.065 4461	487	.279 753	11 376	20		
	50	0.065 3548	483	0.997 8621	32	0.065 4948	487	.268 394	11 359	10		
			483		31		487		11 342			
45	0	0.065 4031		0.997 8589		0.065 5435		15.257 052		0	15	
	10	0.065 4515	484	0.997 8558	31	0.065 5922	487	.245 726	11 326	50		
	20	0.065 4999	484	0.997 8526	32	0.065 6408	486	.234 417	11 309	40		
	30	0.065 5483	484	0.997 8494	32	0.065 6895	487	.223 125	11 292	30		
	40	0.065 5966	483	0.997 8462	32	0.065 7382	487	.211 850	11 275	20		
	50	0.065 6450	484	0.997 8430	32	0.065 7869	487	.200 591	11 259	10		
			484		31		487		11 242			
46	0	0.065 6934		0.997 8399		0.065 8356		15.189 349		0	14	
	10	0.065 7418	484	0.997 8367	32	0.065 8843	487	.178 123	11 226	50		
	20	0.065 7901	483	0.997 8335	32	0.065 9330	487	.166 914	11 209	40		
	30	0.065 8385	484	0.997 8303	32	0.065 9817	487	.155 722	11 192	30		
	40	0.065 8869	484	0.997 8271	32	0.066 0304	487	.144 545	11 177	20		
	50	0.065 9353	484	0.997 8239	32	0.066 0791	487	.133 385	11 160	10		
			483		31		487		11 143			
47	0	0.065 9836		0.997 8207		0.066 1278		15.122 242		0	13	
	10	0.066 0320	484	0.997 8175	32	0.066 1765	487	.111 115	11 127	50		
	20	0.066 0804	484	0.997 8143	32	0.066 2251	486	.100 004	11 111	40		
	30	0.066 1288	484	0.997 8111	32	0.066 2738	487	.088 909	11 095	30		
	40	0.066 1772	484	0.997 8079	32	0.066 3225	487	.077 831	11 078	20		
	50	0.066 2255	483	0.997 8047	32	0.066 3712	487	.066 769	11 062	10		
			484		31		487		11 046			
48	0	0.066 2739		0.997 8015		0.066 4199		15.055 723		0	12	
	10	0.066 3223	484	0.997 7983	32	0.066 4686	487	.044 693	11 030	50		
	20	0.066 3706	483	0.997 7950	33	0.066 5173	487	.033 679	11 014	40		
	30	0.066 4190	484	0.997 7918	32	0.066 5660	487	.022 681	10 998	30		
	40	0.066 4674	484	0.997 7886	32	0.066 6147	487	.011 699	10 982	20		
	50	0.066 5158	484	0.997 7854	33	0.066 6634	487	.000 733	10 966	10		
			483		31		487		10 949			
49	0	0.066 5641		0.997 7821		0.066 7121		14.989 784		0	11	
	10	0.066 6125	484	0.997 7789	32	0.066 7608	487	.978 850	10 934	50		
	20	0.066 6609	484	0.997 7757	32	0.066 8095	487	.967 931	10 919	40		
	30	0.066 7093	484	0.997 7725	33	0.066 8582	487	.957 029	10 902	30		
	40	0.066 7576	483	0.997 7692	33	0.066 9069	487	.946 143	10 886	20		
	50	0.066 8060	484	0.997 7660	33	0.066 9556	487	.935 272	10 871	10		
			484		32		487		10 855			
50	0	0.066 8544		0.997 7627		0.067 0043		14.924 417		0	10	
		Cosine	Diff.	Sine	Diff.	Cotangent	Diff.	Tangent	Diff.	"	'	Proportional Parts

86° 10'

3° 50'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff.			Proportional Parts
50	0	0.066 8544		0.997 7627		0.067 0043		14.924 417		0	10	
	10	9028	484	7595	32	0530	487	.913 578	10 839	50		
	20	9511	483	7563	32	1017	487	.902 754	10 824	40		
	30	9995	484	7530	33	1504	487	.891 946	10 808	30		
	40	0.067 0479	484	7498	32	1991	487	.881 154	10 792	20		
	50	0962	483	7465	33	2478	487	.870 377	10 777	10		
			484		32		487		10 761			
51	0	0.067 1446		0.997 7433		0.067 2965		14.859 616		0	9	Sine
	10	1930	484	7400	33	3452	487	.848 870	10 746	50		483 484
	20	2414	484	7367	33	3939	487	.838 139	10 731	40		1 48 3 48 4
	30	2897	483	7335	32	4426	487	.827 424	10 715	30		2 96 6 96 8
	40	3381	484	7302	33	4913	487	.816 725	10 699	20		3 144 9 145 2
	50	3865	484	7269	32	5400	487	.806 041	10 684	10		4 193 2 193 6
			484		32		487		10 669			5 241 5 242 0
52	0	0.067 4349		0.997 7237		0.067 5887		14.795 372		0	8	6 289 8 290 4
	10	4832	483	7204	33	6374	487	.784 718	10 654	50		7 338 1 338 8
	20	5316	484	7171	33	6861	487	.774 080	10 638	40		8 386 4 387 2
	30	5800	484	7139	33	7348	487	.763 457	10 623	30		9 434 7 435 6
	40	6283	483	7106	32	7835	487	.752 849	10 608	20		
	50	6767	484	7073	33	8322	487	.742 256	10 593	10		Cosine
			484		33		487		10 577			32 33 34
53	0	0.067 7261		0.997 7040		0.067 8809		14.731 679		0	7	1 3 2 3 3 4
	10	7734	483	7007	33	9296	487	.721 116	10 563	50		2 6 4 6 6 8
	20	8218	484	6974	33	9783	487	.710 569	10 547	40		3 9 6 9 9 10 2
	30	8702	484	6942	32	0.068 0270	487	.700 036	10 533	30		4 12 8 13 2 13 6
	40	9186	484	6909	33	0757	487	.689 519	10 517	20		5 16 0 16 5 17 0
	50	9669	483	6876	32	1245	488	.679 017	10 502	10		6 19 2 19 8 20 4
			484		33		487		10 488			7 22 4 23 1 23 8
54	0	0.068 0153		0.997 6843		0.068 1732		14.668 529		0	6	8 25 6 26 4 27 2
	10	0637	484	6810	33	2219	487	.658 057	10 472	50		9 28 8 29 7 30 6
	20	1120	483	6777	33	2706	487	.647 599	10 458	40		
	30	1604	484	6744	33	3193	487	.637 156	10 443	30		Tangent
	40	2088	484	6711	33	3680	487	.626 728	10 428	20		487 488
	50	2571	483	6678	32	4167	487	.616 315	10 413	10		1 48 7 48 8
			484		33		487		10 399			2 97 4 97 6
55	0	0.068 3055		0.997 6645		0.068 4654		14.605 916		0	5	3 146 1 146 4
	10	3539	484	6611	34	5141	487	.595 533	10 383	50		4 194 8 195 2
	20	4022	483	6578	33	5628	487	.585 163	10 370	40		5 243 5 244 0
	30	4506	484	6545	33	6115	487	.574 809	10 354	30		6 292 2 292 8
	40	4990	484	6512	33	6602	487	.564 469	10 340	20		7 340 9 341 6
	50	5473	483	6479	32	7090	488	.554 144	10 325	10		8 389 6 390 4
			484		34		487		10 311			9 438 3 439 2
56	0	0.068 5957		0.997 6445		0.068 7577		14.543 833		0	4	Cotangent
	10	6441	484	6412	33	8064	487	.533 537	10 296	50		11 000 10 000
	20	6924	483	6379	33	8551	487	.523 255	10 282	40		1 1100 0 1000 0
	30	7408	484	6346	33	9038	487	.512 988	10 267	30		2 2200 0 2000 0
	40	7892	484	6312	34	9525	487	.502 735	10 253	20		3 3300 0 3000 0
	50	8375	483	6279	33	0.069 0012	487	.492 497	10 238	10		4 4400 0 4000 0
			484		34		487		10 224			5 5500 0 5000 0
57	0	0.068 8859		0.997 6245		0.069 0499		14.482 273		0	3	6 6600 0 6000 0
	10	9343	484	6212	33	0986	487	.472 064	10 209	50		7 7700 0 7000 0
	20	9826	483	6179	34	1474	488	.461 868	10 196	40		8 8800 0 8000 0
	30	0.069 0310	484	6145	34	1961	487	.451 687	10 181	30		9 9900 0 9000 0
	40	0794	484	6112	33	2448	487	.441 521	10 166	20		
	50	1277	483	6078	32	2935	487	.431 368	10 153	10		1 900 0
			484		33		487		10 138			2 1800 0
58	0	0.069 1761		0.997 6045		0.069 3422		14.421 230		0	2	3 2700 0
	10	2245	484	6011	34	3909	487	.411 105	10 125	50		4 3600 0
	20	2728	483	5978	33	4396	487	.400 995	10 110	40		5 4500 0
	30	3212	484	5944	34	4884	488	.390 900	10 095	30		6 5400 0
	40	3696	484	5910	34	5371	487	.380 818	10 082	20		7 6300 0
	50	4179	483	5877	33	5858	487	.370 750	10 068	10		8 7200 0
			484		34		487		10 054			9 8100 0
59	0	0.069 4663		0.997 5843		0.069 6345		14.360 696		0	1	
	10	5147	484	5809	34	6832	487	.350 656	10 040	50		
	20	5630	483	5776	33	7319	487	.340 631	10 025	40		
	30	6114	484	5742	34	7807	488	.330 619	10 012	30		
	40	6597	483	5708	34	8294	487	.320 621	9 998	20		
	50	7081	484	5674	33	8781	487	.310 637	9 984	10		
			484		33		487		9 971			
60	0	0.069 7565		0.997 5641		0.069 9268		14.300 666		0	0	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff.	"	'	Proportional Parts

86° 00'

4° 00'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
0	0	0.069 7665	483	0.997 5641	34	0.069 9288	487	14.300 666	9 955	0	60	Sine 483 484 1 48 3 48 4 2 96 6 96 8 3 144 9 145 2 4 183 2 193 6 5 241 5 242 0 6 289 8 290 4 7 338 1 338 8 8 386 4 387 2 9 434 7 435 6
	10	8048	484	5607	34	9755	487	.290 710	9 943	50		
	20	8532	484	5573	34	0.070 0242	488	.280 767	9 929	40		
	30	9016	484	5539	34	0730	487	.270 838	9 915	30		
	40	9499	484	5505	34	1217	487	.260 923	9 901	20		
	50	9983	484	5471	34	1704	487	.251 022	9 888	10		
1	0	0.070 0487	483	0.997 5437	34	0.070 2191	487	14.241 134	9 874	0	59	Cosine 34 35 36 1 3 4 3 5 3 6 2 6 8 7 0 7 2 3 10 2 10 5 10 8 4 13 6 14 0 14 4 5 17 0 17 5 18 0 6 20 4 21 0 21 6 7 23 8 24 5 25 2 8 27 2 28 0 28 8 9 30 6 31 5 32 4
	10	0950	484	5403	34	2678	488	.231 260	9 861	50		
	20	1434	483	5369	34	3166	487	.221 399	9 847	40		
	30	1917	484	5335	34	3653	487	.211 552	9 833	30		
	40	2401	484	5301	34	4140	487	.201 719	9 820	20		
	50	2885	483	5267	34	4627	488	.191 899	9 807	10		
2	0	0.070 3368	484	0.997 5233	34	0.070 5115	487	14.182 092	9 792	0	58	Tangent 487 488 1 48 7 48 8 2 97 4 97 6 3 146 1 146 4 4 194 8 195 2 5 243 5 244 0 6 292 2 292 8 7 340 9 341 6 8 389 6 390 4 9 438 3 439 2
	10	3852	483	5199	34	5602	487	.172 300	9 780	50		
	20	4335	484	5165	34	6089	487	.162 520	9 766	40		
	30	4819	484	5131	35	6576	487	.152 754	9 753	30		
	40	5303	483	5096	34	7063	488	.143 001	9 739	20		
	50	5786	484	5062	34	7551	487	.133 262	9 726	10		
3	0	0.070 6270	483	0.997 5028	34	0.070 8038	487	14.123 536	9 712	0	57	Cotangent 10 000 9900 9800 1 1000 0 990 0 980 0 2 2000 0 1980 0 1960 0 3 3000 0 2970 0 2940 0 4 4000 0 3960 0 3920 0 5 5000 0 4950 0 4900 0 6 6000 0 5940 0 5880 0 7 7000 0 6930 0 6860 0 8 8000 0 7920 0 7840 0 9 9000 0 8910 0 8820 0
	10	6753	484	4994	35	8525	487	.113 824	9 700	50		
	20	7237	484	4959	34	9012	488	.104 124	9 686	40		
	30	7721	483	4925	34	9500	487	.094 438	9 673	30		
	40	8204	483	4891	34	9987	487	.084 765	9 659	20		
	50	8688	483	4856	34	0.071 0474	487	.075 106	9 647	10		
4	0	0.070 9171	484	0.997 4822	34	0.071 0961	488	14.065 459	9 633	0	56	Cotangent 10 000 9900 9800 1 1000 0 990 0 980 0 2 2000 0 1980 0 1960 0 3 3000 0 2970 0 2940 0 4 4000 0 3960 0 3920 0 5 5000 0 4950 0 4900 0 6 6000 0 5940 0 5880 0 7 7000 0 6930 0 6860 0 8 8000 0 7920 0 7840 0 9 9000 0 8910 0 8820 0
	10	9655	484	4788	35	1449	487	.055 826	9 620	50		
	20	0.071 0139	483	4753	34	1936	487	.046 206	9 607	40		
	30	0622	484	4719	35	2423	488	.036 599	9 594	30		
	40	1106	483	4684	34	2911	487	.027 005	9 581	20		
	50	1589	484	4650	35	3398	487	.017 424	9 568	10		
5	0	0.071 2073	484	0.997 4615	34	0.071 3885	487	14.007 856	9 555	0	55	Cotangent 10 000 9900 9800 1 1000 0 990 0 980 0 2 2000 0 1980 0 1960 0 3 3000 0 2970 0 2940 0 4 4000 0 3960 0 3920 0 5 5000 0 4950 0 4900 0 6 6000 0 5940 0 5880 0 7 7000 0 6930 0 6860 0 8 8000 0 7920 0 7840 0 9 9000 0 8910 0 8820 0
	10	2557	483	4581	35	4372	488	13.998 301	9 542	50		
	20	3040	484	4546	34	4860	487	.988 759	9 530	40		
	30	3524	484	4512	35	5347	487	.979 229	9 516	30		
	40	4007	484	4477	35	5834	488	.969 713	9 503	20		
	50	4491	483	4442	34	6322	487	.960 210	9 491	10		
6	0	0.071 4974	484	0.997 4408	35	0.071 6809	487	13.950 719	9 477	0	54	Cotangent 10 000 9900 9800 1 1000 0 990 0 980 0 2 2000 0 1980 0 1960 0 3 3000 0 2970 0 2940 0 4 4000 0 3960 0 3920 0 5 5000 0 4950 0 4900 0 6 6000 0 5940 0 5880 0 7 7000 0 6930 0 6860 0 8 8000 0 7920 0 7840 0 9 9000 0 8910 0 8820 0
	10	5458	484	4373	35	7296	488	.941 242	9 465	50		
	20	5942	483	4338	34	7784	487	.931 777	9 452	40		
	30	6425	484	4304	35	8271	487	.922 325	9 439	30		
	40	6909	483	4269	35	8758	487	.912 886	9 427	20		
	50	7392	484	4234	35	9245	488	.903 459	9 414	10		
7	0	0.071 7876	483	0.997 4199	34	0.071 9733	487	13.894 045	9 401	0	53	Cotangent 10 000 9900 9800 1 1000 0 990 0 980 0 2 2000 0 1980 0 1960 0 3 3000 0 2970 0 2940 0 4 4000 0 3960 0 3920 0 5 5000 0 4950 0 4900 0 6 6000 0 5940 0 5880 0 7 7000 0 6930 0 6860 0 8 8000 0 7920 0 7840 0 9 9000 0 8910 0 8820 0
	10	8359	484	4165	35	0.072 0220	487	.884 644	9 389	50		
	20	8843	484	4130	35	0707	488	.875 255	9 376	40		
	30	9327	484	4095	35	1195	487	.865 879	9 363	30		
	40	9810	483	4060	35	1682	487	.856 516	9 351	20		
	50	0.072 0294	483	4025	35	2169	488	.847 165	9 338	10		
8	0	0.072 0777	484	0.997 3990	35	0.072 2657	487	13.837 827	9 326	0	52	Cotangent 10 000 9900 9800 1 1000 0 990 0 980 0 2 2000 0 1980 0 1960 0 3 3000 0 2970 0 2940 0 4 4000 0 3960 0 3920 0 5 5000 0 4950 0 4900 0 6 6000 0 5940 0 5880 0 7 7000 0 6930 0 6860 0 8 8000 0 7920 0 7840 0 9 9000 0 8910 0 8820 0
	10	1261	483	3955	35	3144	488	.828 501	9 313	50		
	20	1744	484	3920	35	3632	487	.819 188	9 301	40		
	30	2228	484	3885	35	4119	487	.809 887	9 288	30		
	40	2711	483	3850	35	4606	488	.800 599	9 276	20		
	50	3195	483	3815	35	5094	487	.791 323	9 263	10		
9	0	0.072 3678	484	0.997 3780	35	0.072 5581	487	13.782 060	9 251	0	51	Cotangent 10 000 9900 9800 1 1000 0 990 0 980 0 2 2000 0 1980 0 1960 0 3 3000 0 2970 0 2940 0 4 4000 0 3960 0 3920 0 5 5000 0 4950 0 4900 0 6 6000 0 5940 0 5880 0 7 7000 0 6930 0 6860 0 8 8000 0 7920 0 7840 0 9 9000 0 8910 0 8820 0
	10	4162	484	3745	35	6068	488	.772 809	9 239	50		
	20	4646	483	3710	35	6556	487	.763 570	9 227	40		
	30	5129	484	3675	35	7043	487	.754 343	9 214	30		
	40	5613	483	3640	35	7530	488	.745 129	9 202	20		
	50	6096	484	3604	35	8018	487	.735 927	9 189	10		
10	0	0.072 6580		0.997 3569		0.072 8505		13.726 738		0	50	Proportional Parts
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

85° 50'

4° 10'

'	"	Sine	Diff.	Cosine	Diff.	Tangent	Diff.	Cotangent	Diff.			Proportional Parts
10	0	0.072 6680		0.997 3569		0.072 8505		13.726 738		0	50	Sine
	10	7063	483	3534	35	8993	488	.717 560	9 178			483 484
	20	7547	484	3499	35	9480	487	.708 395	9 165			1 48 3 48 4
	30	8030	483	3463	36	9967	487	.699 242	9 153			2 96 8 96 8
	40	8514	484	3428	35	0.073 0455	488	.690 101	9 141			3 144 9 145 2
	50	8997	483	3393	35	0942	487	.680 973	9 128			4 193 2 193 6
			484		36		488		9 117			5 241 5 242 0
11	0	0.072 9481		0.997 3357		0.073 1430		13.671 856		0	49	Cosine
	10	9964	483	3322	35	1917	487	.662 751	9 105			35 36 37
	20	0.073 0448	484	3287	35	2404	487	.653 659	9 092			1 48 3 48 4
	30	0931	483	3251	36	2892	488	.644 578	9 081			2 96 8 96 8
	40	1415	484	3216	35	3379	487	.635 510	9 068			3 144 9 145 2
	50	1898	483	3180	36	3867	488	.626 453	9 057			4 193 2 193 6
			484		35		487		9 044			5 241 5 242 0
12	0	0.073 2382		0 997 3145		0 073 4354		13.617 409		0	48	Tangent
	10	2865	483	3109	36	4842	488	.608 376	9 033			487 488
	20	3349	484	3074	35	5329	487	.599 356	9 020			1 48 7 48 8
	30	3832	483	3038	36	5816	487	.590 347	9 009			2 97 4 97 6
	40	4316	484	3003	35	6304	488	.581 350	8 997			3 146 1 146 4
	50	4800	483	2967	36	6791	487	.572 365	8 985			4 191 8 195 2
			484		36		488		8 974			5 243 5 244 0
13	0	0.073 5283		0.997 2931		0.073 7279		13.563 391		0	47	Cotangent
	10	5767	483	2896	35	7766	487	.554 430	8 961			9200 9100
	20	6250	484	2860	36	8254	488	.545 480	8 950			1 920 0 910 0
	30	6734	483	2824	36	8741	487	.536 542	8 938			2 1840 0 1820 0
	40	7217	484	2789	35	9229	488	.527 616	8 926			3 2760 0 2730 0
	50	7700	483	2753	36	9716	487	.518 701	8 915			4 3680 0 3640 0
			484		36		488		8 902			5 4600 0 4550 0
14	0	0.073 8184		0 997 2717		0 074 0203		13.509 799		0	46	Tangent
	10	8667	483	2681	36	0691	487	.500 907	8 892			9000 8900
	20	9151	484	2645	35	1178	488	.492 028	8 879			1 900 0 890 0
	30	9634	483	2610	36	1666	487	.483 160	8 868			2 1800 0 1780 0
	40	0.074 0118	484	2574	35	2153	488	.474 303	8 857			3 2700 0 2670 0
	50	0601	483	2538	36	2641	487	.465 459	8 844			4 3600 0 3560 0
			484		36		488		8 834			5 4500 0 4450 0
15	0	0.074 1085		0.997 2502		0.074 3128		13.456 625		0	45	Cotangent
	10	1568	483	2466	36	3616	487	.447 804	8 821			9000 8900
	20	2052	484	2430	35	4103	488	.438 993	8 811			1 900 0 890 0
	30	2535	483	2394	36	4591	487	.430 194	8 799			2 1800 0 1780 0
	40	3019	484	2358	35	5078	488	.421 407	8 787			3 2700 0 2670 0
	50	3502	483	2322	36	5566	487	.412 631	8 776			4 3600 0 3560 0
			484		36		488		8 764			5 4500 0 4450 0
16	0	0.074 3986		0.997 2286		0.074 6053		13.403 867		0	44	Tangent
	10	4469	483	2250	36	6541	487	.395 114	8 753			9000 8900
	20	4953	484	2214	35	7028	488	.386 372	8 742			1 900 0 890 0
	30	5436	483	2178	36	7516	487	.377 641	8 731			2 1800 0 1780 0
	40	5920	484	2141	37	8003	488	.368 922	8 719			3 2700 0 2670 0
	50	6403	483	2105	36	8491	487	.360 214	8 708			4 3600 0 3560 0
			484		36		488		8 696			5 4500 0 4450 0
17	0	0.074 6887		0 997 2069		0 074 8979		13.351 518		0	43	Cotangent
	10	7370	483	2033	36	9466	487	.342 833	8 685			9000 8900
	20	7853	484	1997	36	9954	488	.334 159	8 674			1 900 0 890 0
	30	8337	483	1960	37	0.075 0441	487	.325 496	8 663			2 1800 0 1780 0
	40	8820	484	1924	36	0929	488	.316 844	8 652			3 2700 0 2670 0
	50	9304	483	1888	37	1416	487	.308 203	8 641			4 3600 0 3560 0
			484		37		488		8 629			5 4500 0 4450 0
18	0	0.074 9787		0 997 1851		0.075 1904		13.299 574		0	42	Tangent
	10	0 075 0271	484	1815	36	2391	487	.290 956	8 618			9000 8900
	20	0754	483	1779	36	2879	488	.282 349	8 607			1 900 0 890 0
	30	1238	484	1742	37	3366	487	.273 753	8 596			2 1800 0 1780 0
	40	1721	483	1706	36	3854	488	.265 168	8 585			3 2700 0 2670 0
	50	2204	484	1669	37	4342	487	.256 594	8 574			4 3600 0 3560 0
			483		36		488		8 563			5 4500 0 4450 0
19	0	0.075 2688		0.997 1633		0.075 4829		13.248 031		0	41	Cotangent
	10	3171	483	1596	37	5317	487	.239 479	8 552			9000 8900
	20	3655	484	1560	36	5804	488	.230 938	8 541			1 900 0 890 0
	30	4138	483	1523	37	6292	487	.222 408	8 530			2 1800 0 1780 0
	40	4622	484	1487	36	6780	488	.213 889	8 519			3 2700 0 2670 0
	50	5105	483	1450	37	7267	487	.205 380	8 509			4 3600 0 3560 0
			484		37		488		8 497			5 4500 0 4450 0
20	0	0.075 5589		0.997 1413		0.075 7755		13.196 883		0	40	Tangent
												Proportional Parts
		Cosine	Diff.	Sine	Diff.	Cotangent	Diff.	Tangent	Diff.	"	'	

85° 40'

4° 20'

'	"	Sine	Diff	Cosine	Diff.	Tangent	Diff.	Cotangent	Diff.			Proportional Parts
20	0	0.075 5689	483	0.997 1413	36	0.075 7755	487	13.196 883	8 486	0	40	Sine
	10	6072	483	1377	37	8242	487	.188 397	8 476	50		483 484
	20	6555	484	1340	37	8730	487	.179 921	8 465	40		1 48 3 48 4
	30	7039	483	1303	36	9217	488	.171 456	8 454	30		2 96 0 96 8
	40	7522	484	1267	37	9705	488	.163 002	8 443	20		3 144 9 145 2
	50	8006	483	1230	37	0.076 0193	487	.154 559	8 432	10		4 103 2 103 6
21	0	0.075 8489	483	0.997 1193	37	0.076 0680	488	13.146 127	8 422	0	39	5 241 5 242 0
	10	8972	484	1156	36	1168	488	.137 705	8 411	50		6 289 8 290 4
	20	9456	483	1120	37	1656	487	.129 294	8 400	40		7 338 1 338 8
	30	9939	484	1083	37	2143	488	.120 894	8 390	30		8 386 4 387 2
	40	0.076 0423	483	1046	37	2631	487	.112 504	8 379	20		9 434 7 435 6
	50	0906	484	1009	37	3118	488	.104 125	8 368	10		Cosine
22	0	0.076 1390	483	0.997 0972	37	0.076 3606	488	13.095 757	8 358	0	38	36 37 38
	10	1873	483	0935	37	4094	487	.087 399	8 347	50		1 3 6 3 7 3 8
	20	2356	484	0898	37	4581	488	.079 052	8 336	40		2 7 2 7 4 7 6
	30	2840	483	0861	37	5069	488	.070 716	8 326	30		3 10 8 11 1 11 4
	40	3323	484	0824	37	5557	487	.062 390	8 316	20		4 14 4 14 8 15 2
	50	3807	483	0787	37	6044	488	.054 074	8 305	10		5 18 0 18 5 19 0
23	0	0.076 4290	483	0.997 0750	37	0.076 6532	488	13.045 769	8 294	0	37	6 21 6 22 2 22 8
	10	4773	484	0713	37	7020	487	.037 475	8 284	50		7 25 2 25 9 26 6
	20	5257	483	0676	37	7507	488	.029 191	8 273	40		8 28 8 29 6 30 4
	30	5740	484	0639	37	7995	488	.020 918	8 263	30		9 32 4 33 3 34 2
	40	6224	483	0602	37	8483	487	.012 655	8 253	20		Tangent
	50	6707	483	0565	37	8970	488	.004 402	8 242	10		487 488
24	0	0.076 7190	484	0.997 0528	38	0.076 9458	488	12.996 160	8 232	0	36	1 48 7 48 8
	10	7674	483	0490	37	9946	487	.987 928	8 221	50		2 97 4 97 6
	20	8157	483	0453	37	0.077 0433	488	.979 707	8 210	40		3 146 1 146 4
	30	8640	484	0416	37	0921	488	.971 495	8 200	30		4 194 8 195 2
	40	9124	483	0379	38	1409	488	.963 295	8 191	20		5 243 5 244 0
	50	9607	484	0341	37	1807	487	.955 104	8 180	10		6 292 2 292 8
25	0	0.077 0091	483	0.997 0304	37	0.077 2384	488	12.946 924	8 170	0	35	7 340 9 341 6
	10	0574	483	0267	37	2872	488	.938 754	8 160	50		8 389 0 390 4
	20	1057	484	0229	37	3360	487	.930 594	8 149	40		9 438 3 439 2
	30	1541	483	0192	37	3847	488	.922 445	8 139	30		Cotangent
	40	2024	483	0154	38	4335	488	.914 306	8 129	20		8500 8400
	50	2507	484	0117	37	4823	488	.906 177	8 119	10		1 850 0 840 0
26	0	0.077 2991	483	0.997 0080	38	0.077 5311	487	12.898 068	8 109	0	34	2 1700 0 1680 0
	10	3474	483	0042	37	5798	488	.889 949	8 099	50		3 2550 0 2520 0
	20	3957	484	0005	37	6286	488	.881 850	8 088	40		4 3400 0 3360 0
	30	4441	483	0.996 9967	38	6774	487	.873 762	8 079	30		5 4250 0 4200 0
	40	4924	484	9929	37	7261	488	.865 683	8 068	20		6 5100 0 5040 0
	50	5408	483	9892	38	7749	488	.857 615	8 058	10		7 5950 0 5880 0
27	0	0.077 5891	483	0.996 9854	37	0.077 8237	488	12.849 567	8 049	0	33	8 6800 0 6720 0
	10	6374	484	9817	37	8725	487	.841 508	8 038	50		9 7650 0 7560 0
	20	6858	483	9779	38	9212	488	.833 470	8 028	40		8300 8200
	30	7341	483	9741	38	9700	488	.825 442	8 019	30		1 830 0 820 0
	40	7824	484	9704	37	0.078 0188	488	.817 423	8 008	20		2 1660 0 1640 0
	50	8308	483	9666	38	0676	488	.809 415	7 998	10		3 2490 0 2460 0
28	0	0.077 8791	483	0.996 9628	38	0.078 1164	487	12.801 417	7 989	0	32	4 3420 0 3280 0
	10	9274	484	9590	37	1651	488	.793 428	7 978	50		5 4150 0 4100 0
	20	9758	483	9553	37	2139	488	.785 450	7 969	40		6 4980 0 4920 0
	30	0.078 0241	483	9515	38	2627	488	.777 481	7 959	30		7 5810 0 5740 0
	40	0724	484	9477	38	3115	487	.769 522	7 949	20		8 6640 0 6560 0
	50	1208	483	9439	38	3602	488	.761 573	7 939	10		9 7470 0 7380 0
29	0	0.078 1691	483	0.996 9401	38	0.078 4090	488	12.753 634	7 929	0	31	8100 8000
	10	2174	484	9363	38	4578	488	.745 705	7 920	50		1 810 0 800 0
	20	2658	483	9325	38	5066	488	.737 785	7 909	40		2 1620 0 1600 0
	30	3141	483	9287	38	5554	487	.729 876	7 900	30		3 2430 0 2400 0
	40	3624	484	9249	38	6041	488	.721 976	7 891	20		4 3240 0 3200 0
	50	4108	483	9211	38	6529	488	.714 085	7 880	10		5 4050 0 4000 0
30	0	0.078 4591		0.996 9173		0.078 7017		12.706 205		0	30	6 4860 0 4800 0
												7 5670 0 5600 0
												8 6480 0 6400 0
												9 7290 0 7200 0
												7900
												1 790 0
												2 1580 0
												3 2370 0
												4 3160 0
												5 3950 0
												6 4740 0
												7 5530 0
												8 6320 0
												9 7110 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

85° 30'

4° 30'

	'	"	Sine	Diff.	Cosine	Diff.	Tangent	Diff.	Cotangent	Diff.			Proportional Parts
30	0	0.078 4591	483	0.996 9173	38	0.078 7017	488	12.706 205	7 871	0	30	Sine	
	10	5074	483	9135	38	7505	488	.698 334	7 861	50		483 484	
	20	5558	483	9097	38	7993	488	.690 473	7 852	40		1 48 3 48 4	
	30	6041	483	9059	38	8481	488	.682 621	7 842	30		2 96 6 96 8	
	40	6524	483	9021	38	8968	487	.674 779	7 832	20		3 144 9 145 2	
	50	7008	484	8983	38	9456	488	.666 947	7 822	10		4 193 2 193 6	
31	0	0.078 7491	483	0.996 8945	39	0.078 9944	488	12.659 125	7 813	0	29	Sine	
	10	7974	483	8906	38	0.079 0432	488	.651 312	7 804	50		5 241 5 242 0	
	20	8457	484	8868	38	0920	488	.643 508	7 794	40		6 289 8 290 4	
	30	8941	483	8830	38	1408	487	.635 714	7 784	30		7 338 1 338 8	
	40	9424	483	8792	38	1895	488	.627 930	7 775	20		8 386 4 387 2	
	50	9907	484	8754	39	2383	488	.620 155	7 765	10		9 434 7 435 6	
32	0	0.079 0391	483	0.996 8715	38	0 079 2871	488	12.612 390	7 756	0	28	Cosine	
	10	0874	483	8677	38	3359	488	.604 634	7 746	50		38 39 40	
	20	1357	484	8639	39	3847	488	.596 888	7 737	40		1 7 6 7 8 8 0	
	30	1841	483	8600	38	4335	488	.589 151	7 727	30		3 11 4 11 7 12 0	
	40	2324	483	8562	39	4823	487	.581 424	7 718	20		4 15 2 15 6 16 0	
	50	2807	483	8523	38	5310	488	.573 706	7 709	10		5 19 0 19 5 20 0	
33	0	0.079 3290	484	0 996 8485	39	0 079 5798	488	12.565 997	7 699	0	27	Cosine	
	10	3774	483	8446	38	6286	488	.558 298	7 690	50		6 22 8 23 4 24 0	
	20	4257	484	8408	39	6774	488	.550 608	7 680	40		7 26 6 27 3 28 0	
	30	4740	484	8369	38	7262	488	.542 928	7 672	30		8 30 4 31 2 32 0	
	40	5224	483	8331	39	7750	488	.535 256	7 661	20		9 34 2 35 1 36 0	
	50	5707	483	8292	38	8238	488	.527 595	7 653	10			
34	0	0 079 6190	484	0 996 8254	39	0.079 8726	488	12 519 942	7 643	0	26	Tangent	
	10	6673	484	8215	39	9214	488	.512 299	7 634	50		487 488	
	20	7157	484	8176	39	9702	488	.504 665	7 625	40		1 48 7 48 8	
	30	7640	483	8138	38	0.080 0189	487	.497 040	7 615	30		2 97 4 97 6	
	40	8123	483	8099	39	0677	488	.489 425	7 607	20		3 146 1 146 4	
	50	8606	484	8060	38	1165	488	.481 818	7 597	10		4 194 8 195 2	
35	0	0 079 9090	483	0 996 8022	39	0.080 1653	488	12 474 221	7 588	0	25	Tangent	
	10	9573	483	7983	39	2141	488	.466 633	7 578	50		7900 7800	
	20	0 080 0056	483	7944	39	2629	488	.459 055	7 570	40		1 790 0 780 0	
	30	0539	484	7905	38	3117	488	.451 485	7 560	30		2 1580 0 1580 0	
	40	1023	483	7867	39	3605	448	.443 925	7 552	20		3 2370 0 2340 0	
	50	1506	483	7828	39	4093	488	.436 373	7 542	10		4 3160 0 3120 0	
36	0	0 080 1989	483	0 996 7789	39	0.080 4581	488	12 428 831	7 533	0	24	Cotangent	
	10	2472	484	7750	39	5069	488	.421 298	7 524	50		5 3950 0 3900 0	
	20	2956	483	7711	39	5557	488	.413 774	7 515	40		6 4740 0 4680 0	
	30	3439	483	7672	39	6045	488	.406 259	7 506	30		7 5530 0 5480 0	
	40	3922	483	7633	39	6533	488	.398 753	7 497	20		8 6320 0 6240 0	
	50	4405	484	7594	39	7021	488	.391 256	7 488	10		9 7110 0 7020 0	
37	0	0.080 4889	483	0.996 7555	39	0.080 7509	488	12 383 768	7 479	0	23	Cotangent	
	10	5372	483	7516	39	7997	488	.376 289	7 470	50		7700 7600	
	20	5855	483	7477	39	8485	488	.368 819	7 461	40		1 770 0 760 0	
	30	6338	484	7438	39	8973	488	.361 358	7 452	30		2 1540 0 1520 0	
	40	6822	483	7399	39	9461	488	.353 906	7 444	20		3 2310 0 2280 0	
	50	7305	483	7360	39	9949	488	.346 462	7 434	10		4 3080 0 3040 0	
38	0	0.080 7788	483	0 996 7321	40	0.081 0437	488	12 339 028	7 425	0	22	Cotangent	
	10	8271	484	7281	39	0925	488	.331 603	7 417	50		5 3850 0 3800 0	
	20	8755	483	7242	39	1413	488	.324 186	7 407	40		6 4620 0 4560 0	
	30	9238	483	7203	39	1901	488	.316 779	7 399	30		7 5390 0 5320 0	
	40	9721	483	7164	39	2389	488	.309 380	7 390	20		8 6160 0 6080 0	
	50	0.081 0204	483	7124	39	2877	488	.301 990	7 381	10		9 6930 0 6840 0	
39	0	0 081 0687	484	0.996 7085	39	0.081 3365	488	12.294 609	7 373	0	21	Cotangent	
	10	1171	483	7046	39	3853	488	.287 236	7 364	50		7500 7400	
	20	1654	483	7006	40	4341	488	.279 872	7 354	40		1 750 0 740 0	
	30	2137	483	6967	39	4829	488	.272 518	7 346	30		2 1500 0 1480 0	
	40	2620	484	6928	39	5317	488	.265 172	7 338	20		3 2250 0 2220 0	
	50	3104	483	6888	39	5805	488	.257 834	7 329	10		4 3000 0 2960 0	
40	0	0.081 3587		0.996 6849		0.081 6293		12.260 505		0	20	Cotangent	
												5 3750 0 3700 0	
												6 4500 0 4440 0	
												7 5250 0 5180 0	
												8 6000 0 5920 0	
												9 6750 0 6660 0	
			Cosine	Diff.	Sine	Diff.	Cotangent	Diff.	Tangent	Diff.	'	'	Proportional Parts

85° 20'

4° 40'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
40	0	0.081 3587		0.996 6849		0.081 6293		12.250 506		0	20	
	10	4070	483	6809	40	6781	488	.243 185	7 320	50		
	20	4553	483	6770	39	7269	488	.235 874	7 311	40		
	30	5036	483	6730	40	7757	488	.228 572	7 302	30		
	40	5520	484	6691	39	8245	488	.221 278	7 294	20		
	50	6003	483	6651	40	8733	488	.213 992	7 286	10		
			483		39		488		7 276			
41	0	0.081 6486		0.996 6612		0.081 9221		12.206 716		0	19	
	10	6969	483	6572	40	9709	488	.199 448	7 268	50		
	20	7452	483	6533	39	0.082 0197	488	.192 188	7 260	40		
	30	7936	484	6493	40	0685	488	.184 937	7 251	30		
	40	8419	483	6453	40	1173	488	.177 695	7 242	20		
	50	8902	483	6414	39	1662	489	.170 461	7 234	10		
			483		40		488		7 225			
42	0	0.081 9385		0.996 6374		0.082 2150		12.163 236		0	18	
	10	9868	483	6334	40	2638	488	.156 019	7 217	50		
	20	0.082 0351	483	6294	40	3126	488	.148 811	7 208	40		
	30	0835	484	6255	39	3614	488	.141 611	7 200	30		
	40	1318	483	6215	40	4102	488	.134 419	7 192	20		
	50	1801	483	6175	40	4590	488	.127 237	7 182	10		
			483		40		488		7 175			
43	0	0.082 2284		0.996 6135		0.082 5078		12.120 062		0	17	
	10	2767	483	6095	40	5566	488	.112 896	7 166	50		
	20	3250	483	6055	40	6055	489	.105 739	7 157	40		
	30	3734	484	6015	40	6543	488	.098 589	7 150	30		
	40	4217	483	5975	40	7031	488	.091 449	7 140	20		
	50	4700	483	5935	40	7519	488	.084 316	7 133	10		
			483		40		488		7 124			
44	0	0.082 5183		0.996 5896		0.082 8007		12.077 192		0	16	
	10	5666	483	5855	40	8495	488	.070 076	7 116	50		
	20	6149	483	5815	40	8983	488	.062 969	7 107	40		
	30	6633	484	5775	40	9471	488	.055 870	7 099	30		
	40	7116	483	5735	40	9960	489	.048 779	7 091	20		
	50	7599	483	5695	40	0.083 0448	488	.041 697	7 082	10		
			483		40		488		7 075			
45	0	0.082 8082		0.996 5656		0.083 0936		12.034 622		0	15	
	10	8565	483	5615	40	1424	488	.027 556	7 066	50		
	20	9048	483	5575	40	1912	488	.020 499	7 057	40		
	30	9532	484	5534	41	2400	488	.013 449	7 050	30		
	40	0.083 0015	483	5494	40	2889	489	.006 408	7 041	20		
	50	0498	483	5454	40	3377	488	11 999 374	7 034	10		
			483		40		488		7 025			
46	0	0.083 0981		0.996 5414		0.083 3865		11.992 349		0	14	
	10	1464	483	5373	41	4353	488	.985 333	7 016	50		
	20	1947	483	5333	40	4841	488	.978 324	7 009	40		
	30	2430	483	5293	40	5330	489	.971 323	7 001	30		
	40	2913	483	5252	41	5818	488	.964 331	6 992	20		
	50	3397	484	5212	40	6306	488	.957 347	6 984	10		
			483		40		488		6 976			
47	0	0.083 3880		0.996 5172		0.083 6794		11.950 371		0	13	
	10	4363	483	5131	41	7282	488	.943 402	6 969	50		
	20	4846	483	5091	40	7771	489	.936 442	6 960	40		
	30	5329	483	5050	40	8259	488	.929 490	6 952	30		
	40	5812	483	5010	40	8747	488	.922 546	6 944	20		
	50	6295	483	4969	41	9235	488	.915 610	6 936	10		
			483		40		488		6 928			
48	0	0.083 6778		0.996 4929		0.083 9723		11.908 682		0	12	
	10	7262	484	4888	41	0.084 0212	489	.901 762	6 920	50		
	20	7745	483	4847	41	0700	488	.894 850	6 912	40		
	30	8228	483	4807	40	1188	488	.887 946	6 904	30		
	40	8711	483	4766	41	1676	488	.881 050	6 896	20		
	50	9194	483	4725	40	2165	489	.874 162	6 888	10		
			483		40		488		6 880			
49	0	0.083 9677		0.996 4685		0.084 2653		11.867 282		0	11	
	10	0.084 0160	483	4644	41	3141	488	.860 410	6 872	50		
	20	0643	483	4603	41	3629	488	.853 545	6 865	40		
	30	1126	483	4563	40	4118	489	.846 689	6 856	30		
	40	1609	483	4522	41	4606	488	.839 840	6 849	20		
	50	2093	484	4481	41	5094	488	.833 000	6 840	10		
			483		41		489		6 833			
50	0	0.084 2576		0.996 4440		0.084 5583		11.826 167		0	10	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

85° 10'

4° 50'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
50	0	0.084 2576		0.996 4440		0.084 5583		11.826 167		0	10	
	10	3059	483	4399	41	6071	488	.819 342	6 825	50		
	20	3542	483	4358	41	6559	488	.812 524	6 818	40		
	30	4025	483	4317	41	7047	488	.805 715	6 809	30		
	40	4508	483	4277	40	7536	489	.798 913	6 802	20		
	50	4991	483	4236	41	8024	488	.792 119	6 794	10		
51	0	0.084 5474		0.996 4195		0.084 8512		11.785 333		0	9	
	10	5957	483	4154	41	9001	489	.778 555	6 778	50		
	20	6440	483	4113	41	9489	488	.771 784	6 771	40		
	30	6923	483	4071	41	9977	488	.765 021	6 763	30		
	40	7406	484	4030	41	0.085 0466	489	.758 266	6 755	20		
	50	7890	483	3989	41	0954	488	.751 518	6 748	10		
52	0	0.084 8373		0.996 3948		0.085 1442		11.744 779		0	8	
	10	8856	483	3907	41	1931	489	.738 046	6 733	50		
	20	9339	483	3866	41	2419	488	.731 322	6 724	40		
	30	9822	483	3825	41	2907	488	.724 605	6 717	30		
	40	0.085 0305	483	3784	41	3396	489	.717 896	6 709	20		
	50	0788	483	3742	42	3884	488	.711 194	6 702	10		
53	0	0.085 1271		0.996 3701		0.085 4372		11.704 500		0	7	
	10	1754	483	3660	41	4861	489	.697 814	6 686	50		
	20	2237	483	3618	42	5349	488	.691 135	6 679	40		
	30	2720	483	3577	41	5837	488	.684 464	6 671	30		
	40	3203	483	3536	41	6326	489	.677 800	6 664	20		
	50	3686	483	3494	42	6814	488	.671 144	6 656	10		
54	0	0.085 4169		0.996 3453		0.085 7302		11.664 495		0	6	
	10	4652	483	3412	41	7791	489	.657 854	6 641	50		
	20	5135	483	3370	42	8279	488	.651 221	6 633	40		
	30	5618	483	3329	41	8768	489	.644 594	6 627	30		
	40	6101	483	3287	42	9256	488	.637 976	6 618	20		
	50	6584	483	3246	42	9744	489	.631 365	6 611	10		
55	0	0.085 7067		0.996 3204		0.086 0233		11.624 761		0	5	
	10	7550	483	3163	41	0721	488	.618 165	6 596	50		
	20	8034	484	3121	42	1210	489	.611 576	6 589	40		
	30	8517	483	3079	42	1698	488	.604 994	6 582	30		
	40	9000	483	3038	42	2186	489	.598 420	6 574	20		
	50	9483	483	2996	42	2675	488	.591 853	6 567	10		
56	0	0.085 9966		0.996 2954		0.086 3163		11.585 294		0	4	
	10	0.086 0449	483	2913	41	3652	489	.578 742	6 552	50		
	20	0932	483	2871	42	4140	488	.572 198	6 544	40		
	30	1415	483	2829	42	4629	489	.565 660	6 538	30		
	40	1898	483	2787	42	5117	488	.559 131	6 529	20		
	50	2381	483	2746	42	5605	489	.552 608	6 523	10		
57	0	0.086 2864		0.996 2704		0.086 6094		11.546 093		0	3	
	10	3347	483	2662	42	6582	488	.539 585	6 508	50		
	20	3830	483	2620	42	7071	489	.533 084	6 501	40		
	30	4313	483	2578	42	7559	488	.526 591	6 493	30		
	40	4796	483	2536	42	8048	489	.520 104	6 487	20		
	50	5279	483	2494	42	8536	488	.513 625	6 479	10		
58	0	0.086 5762		0.996 2452		0.086 9025		11.507 154		0	2	
	10	6245	483	2410	42	9513	488	.500 689	6 465	50		
	20	6728	483	2368	42	0.087 0002	489	.494 232	6 457	40		
	30	7211	483	2326	42	0490	488	.487 782	6 450	30		
	40	7694	483	2284	42	0979	489	.481 339	6 443	20		
	50	8177	483	2242	42	1467	488	.474 903	6 436	10		
59	0	0.086 8660		0.996 2200		0.087 1956		11.468 474		0	1	
	10	9143	483	2158	42	2444	488	.462 053	6 421	50		
	20	9626	483	2116	42	2933	489	.455 639	6 414	40		
	30	0.087 0109	482	2074	43	3421	488	.449 231	6 408	30		
	40	0591	483	2031	43	3910	489	.442 831	6 400	20		
	50	1074	483	1989	42	4398	488	.436 438	6 393	10		
60	0	0.087 1557		0.996 1947		0.087 4887		11.430 052		0	0	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff.	"	'	Proportional Parts

85° 00'

5° 00'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
0	0	0.087 1557		0.996 1947		0.087 4887		11.430 052		0	60	
	10	2040	483	1905	42	5375	488	.423 673	6 379	50		
	20	2523	483	1862	43	5864	489	.417 307	6 371	40		
	30	3006	483	1820	42	6352	488	.410 932	6 365	30		
	40	3489	483	1778	42	6841	489	.404 579	6 358	20		
	50	3972	483	1735	43	7329	488	.398 229	6 350	10		
			483		42		489		6 344			
1	0	0.087 4455		0.996 1693		0.087 7818		11.391 885		0	59	
	10	4938	483	1651	42	8306	488	.385 548	6 337	50		
	20	5421	483	1608	43	8795	489	.379 219	6 329	40		
	30	5904	483	1566	42	9284	489	.372 896	6 323	30		
	40	6387	483	1523	43	9772	488	.366 580	6 316	20		
	50	6870	483	1481	42	0 088 0261	489	.360 271	6 309	10		
			483		43		488		6 301			
2	0	0.087 7353		0.996 1438		0.088 0749		11.353 970		0	58	
	10	7836	483	1396	42	1238	489	.347 675	6 295	50		
	20	8319	483	1353	43	1726	488	.341 387	6 288	40		
	30	8802	483	1311	42	2215	489	.335 106	6 281	30		
	40	9285	483	1268	43	2704	489	.328 832	6 274	20		
	50	9768	483	1225	42	3192	488	.322 564	6 268	10		
			483		42		489		6 260			
3	0	0.088 0251		0 996 1183		0.088 3681		11.316 304		0	57	
	10	0733	482	1140	43	4169	488	.310 050	6 254	50		
	20	1216	483	1097	43	4658	489	.303 804	6 246	40		
	30	1699	483	1054	43	5147	489	.297 564	6 240	30		
	40	2182	483	1012	42	5635	488	.291 331	6 233	20		
	50	2665	483	0969	43	6124	489	.285 105	6 226	10		
			483		43		488		6 220			
4	0	0.088 3148		0.996 0926		0 088 6612		11.278 885		0	56	
	10	3631	483	0883	43	7101	489	.272 673	6 212	50		
	20	4114	483	0840	43	7590	489	.266 467	6 206	40		
	30	4597	483	0798	42	8078	488	.260 268	6 199	30		
	40	5080	483	0755	43	8567	489	.254 076	6 192	20		
	50	5563	483	0712	43	9056	489	.247 890	6 186	10		
			483		43		488		6 178			
5	0	0 088 6046		0.996 0669		0 088 9544		11 241 712		0	55	
	10	6528	482	0626	43	0 089 0033	489	.235 540	6 172	50		
	20	7011	483	0583	43	0522	489	.229 374	6 166	40		
	30	7494	483	0540	43	1010	488	.223 216	6 158	30		
	40	7977	483	0497	43	1499	489	.217 064	6 152	20		
	50	8460	483	0454	43	1988	489	.210 919	6 145	10		
			483		43		488		6 139			
6	0	0.088 8943		0 996 0411		0 089 2476		11.204 780		0	54	
	10	9426	483	0368	43	2965	489	.198 648	6 132	50		
	20	9909	483	0324	44	3454	489	.192 523	6 125	40		
	30	0 089 0392	483	0281	43	3942	488	.186 405	6 118	30		
	40	0875	483	0238	43	4431	489	.180 293	6 112	20		
	50	1357	482	0195	43	4920	489	.174 187	6 106	10		
			483		43		488		6 098			
7	0	0.089 1840		0 996 0152		0 089 5408		11 168 089		0	53	
	10	2323	483	0108	44	5897	489	.161 997	6 092	50		
	20	2806	483	0065	43	6386	489	.155 911	6 086	40		
	30	3289	483	0022	43	6874	488	.149 832	6 079	30		
	40	3772	483	0 995 9979	43	7363	489	.143 760	6 072	20		
	50	4255	483	9935	44	7852	489	.137 694	6 066	10		
			483		43		488		6 059			
8	0	0.089 4738		0.995 9892		0.089 8341		11.131 635		0	52	
	10	5220	482	9848	43	8829	488	.125 582	6 053	50		
	20	5703	483	9805	43	9318	489	.119 536	6 046	40		
	30	6186	483	9762	43	9807	489	.113 496	6 040	30		
	40	6669	483	9718	44	0 090 0296	489	.107 463	6 033	20		
	50	7152	483	9675	44	0784	488	.101 437	6 026	10		
			483		44		489		6 021			
9	0	0.089 7635		0.995 9631		0.090 1273		11.095 416		0	51	
	10	8118	483	9588	43	1762	489	.089 403	6 013	50		
	20	8600	482	9544	44	2251	489	.083 396	6 007	40		
	30	9083	483	9500	44	2739	488	.077 395	6 001	30		
	40	9566	483	9457	43	3228	489	.071 400	5 995	20		
	50	0.090 0049	483	9413	44	3717	489	.065 412	5 988	10		
			483		43		488		5 981			
10	0	0.090 0532		0.995 9370		0.090 4206		11.059 431		0	50	
		Cosine	Diff.	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

84° 50'

5° 10'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff.			Proportional Parts
10	0	0.090 0532		0.995 9370		0.090 4206		11.059 431		0	50	
	10	1015	483	9326	44	4694	488	.053 456	5 975	50		Sine
	20	1498	483	9282	44	5183	489	.047 487	5 969	40		482 483
	30	1980	482	9238	44	5672	489	.041 525	5 962	30		1 48 2 48 3
	40	2463	483	9195	43	6161	489	.035 569	5 956	20		2 96 4 96 6
	50	2946	483	9151	44	6650	489	.029 619	5 950	10		3 144 6 144 9
			483		44		488		5 943			4 192 8 193 2
11	0	0.090 3429		0.995 9107		0.090 7138		11.023 676		0	49	
	10	3912	483	9063	44	7627	489	.017 739	5 937	50		5 241 0 241 5
	20	4395	483	9020	43	8116	489	.011 809	5 930	40		6 289 2 289 8
	30	4877	482	8976	44	8605	489	.005 885	5 924	30		7 337 4 338 1
	40	5360	483	8932	44	9094	489	10 999 967	5 918	20		8 385 6 386 4
	50	5843	483	8888	44	9582	488	.994 055	5 912	10		9 433 8 434 7
			483		44		489		5 905			
12	0	0.090 6326		0.995 8844		0.091 0071		10.988 150		0	48	
	10	6809	483	8800	44	0560	489	.982 251	5 899	50		Cosine
	20	7291	482	8756	44	1049	489	.976 359	5 892	40		43 44 45
	30	7774	483	8712	44	1538	489	.970 472	5 887	30		1 4 3 4 4 4 5
	40	8257	483	8668	44	2027	489	.964 592	5 880	20		2 8 6 8 8 9 0
	50	8740	483	8624	44	2515	488	.958 718	5 874	10		3 12 9 13 2 13 5
			483		44		489		5 868			4 17 2 17 6 18 0
13	0	0.090 9223		0.995 8580		0.091 3004		10.952 850		0	47	
	10	9705	482	8536	44	3493	489	.946 989	5 861	50		5 21 5 22 0 22 5
	20	0.091 0188	482	8492	44	3982	489	.941 134	5 855	40		6 25 8 26 4 27 0
	30	0671	483	8448	44	4471	489	.935 285	5 849	30		7 30 1 30 8 31 5
	40	1154	483	8403	45	4960	489	.929 442	5 843	20		8 34 4 35 2 36 0
	50	1637	483	8359	44	5449	489	.923 605	5 837	10		9 38 7 39 6 40 5
			482		44		489		5 830			
14	0	0.091 2119		0.995 8315		0.091 5938		10.917 775		0	46	
	10	2602	483	8271	44	6426	488	.911 951	5 824	50		Tangent
	20	3085	483	8227	44	6915	489	.906 132	5 819	40		488 489
	30	3568	483	8182	45	7404	489	.900 321	5 811	30		1 48 8 48 9
	40	4051	483	8138	44	7893	489	.894 515	5 806	20		2 97 6 97 8
	50	4533	482	8094	44	8382	489	.888 715	5 800	10		3 146 4 146 7
			483		45		489		5 794			4 195 2 195 6
15	0	0.091 5016		0.995 8049		0.091 8871		10.882 921		0	45	
	10	5499	483	8005	44	9360	489	.877 134	5 787	50		5 244 0 241 5
	20	5982	483	7961	44	9849	489	.871 353	5 781	40		6 292 8 293 4
	30	6465	483	7916	45	0.092 0338	489	.865 577	5 776	30		7 341 6 342 3
	40	6947	482	7872	44	0827	489	.859 808	5 769	20		8 390 4 391 2
	50	7430	483	7827	45	1316	489	.854 045	5 763	10		9 439 2 440 1
			483		44		488		5 757			
16	0	0.091 7913		0.995 7783		0.092 1804		10.848 288		0	44	
	10	8396	483	7738	45	2293	489	.842 537	5 751	50		Cotangent
	20	8878	482	7694	44	2782	489	.836 792	5 745	40		6000 5900
	30	9361	483	7649	45	3271	489	.831 053	5 739	30		1 600 0 590 0
	40	9844	483	7604	45	3760	489	.825 320	5 733	20		2 1200 0 1180 0
	50	0.092 0327	483	7560	44	4249	489	.819 593	5 727	10		3 1800 0 1770 0
			482		45		489		5 721			4 2400 0 2360 0
17	0	0.092 0809		0.995 7515		0.092 4738		10.813 872		0	43	
	10	1292	483	7471	44	5227	489	.808 158	5 714	50		5 3000 0 2950 0
	20	1775	483	7426	45	5716	489	.802 449	5 709	40		6 3600 0 3540 0
	30	2258	483	7381	45	6205	489	.796 746	5 703	30		7 4200 0 4130 0
	40	2740	482	7337	44	6694	489	.791 049	5 697	20		8 4800 0 4720 0
	50	3223	483	7292	45	7183	489	.785 358	5 691	10		9 5400 0 5310 0
			483		45		489		5 685			
18	0	0.092 3706		0.995 7247		0.092 7672		10.779 673		0	42	
	10	4189	483	7202	45	8161	489	.773 994	5 679	50		5800 5700
	20	4671	482	7157	45	8650	489	.768 320	5 674	40		1 580 0 570 0
	30	5154	483	7113	44	9139	489	.762 653	5 667	30		2 1160 0 1140 0
	40	5637	483	7068	45	9628	489	.756 992	5 661	20		3 1710 0 1710 0
	50	6120	483	7023	45	0.093 0117	489	.751 336	5 656	10		4 2320 0 2280 0
			482		45		489		5 649			5 2900 0 2850 0
19	0	0.092 6602		0.995 6978		0.093 0606		10.745 687		0	41	
	10	7085	483	6933	45	1095	489	.740 043	5 644	50		6 3480 0 3420 0
	20	7568	482	6888	45	1584	489	.734 405	5 638	40		7 4060 0 3990 0
	30	8050	482	6843	45	2073	489	.728 773	5 632	30		8 4640 0 4560 0
	40	8533	483	6798	45	2562	489	.723 147	5 626	20		9 5220 0 5130 0
	50	9016	483	6753	45	3051	489	.717 527	5 620	10		5600
			483		45		489		5 614			1 560 0
20	0	0.092 9499		0.995 6708		0.093 3540		10.711 913		0	40	
												2 1120 0
												3 1680 0
												4 2240 0
												5 2800 0
												6 3360 0
												7 3920 0
												8 4480 0
												9 5040 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff.	Tangent	Diff.	"	'	Proportional Parts

84° 40'

5° 20'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff.			Proportional Parts
20	0	0.092 9499		0.995 6708		0.093 3540		10.711 913		0	40	
	10	9981	482	6663	45	4029	489	.706 304	5 609	50		Sine
	20	0.093 0464	483	6618	45	4518	489	.700 701	5 603	40		482 483
	30	0947	483	6573	45	5007	489	.695 104	5 597	30		1 48 2 48 3
	40	1429	482	6527	46	5496	489	.689 513	5 591	20		2 96 4 96 6
	50	1912	483	6482	45	5985	489	.683 928	5 585	10		3 144 6 144 9
			483		45		489		5 580			4 192 8 193 2
21	0	0.093 2395		0.995 6437		0.093 6474		10.678 348		0	39	
	10	2878	483	6392	45	6963	489	.672 775	5 573	50		5 241 0 241 5
	20	3360	482	6347	45	7453	490	.667 207	5 568	40		6 289 2 289 8
	30	3843	483	6301	46	7942	489	.661 644	5 563	30		7 337 4 338 1
	40	4326	483	6256	45	8431	489	.656 088	5 556	20		8 385 6 386 4
	50	4808	482	6211	45	8920	489	.650 537	5 551	10		9 433 8 434 7
			483		46		489		5 545			
22	0	0.093 5291		0.995 6165		0.093 9409		10.644 992		0	38	
	10	5774	483	6120	45	9898	489	.639 453	5 539	50		Cosine
	20	6256	482	6075	45	0 094 0387	489	.633 919	5 534	40		45 46 47
	30	6739	483	6029	46	0876	489	.628 391	5 528	30		1 4 5 4 6 4 7
	40	7222	483	5984	45	1365	489	.622 869	5 522	20		2 9 0 9 2 9 4
	50	7704	482	5938	46	1854	489	.617 352	5 517	10		3 13 5 13 8 14 1
			483		45		490		5 511			4 18 0 18 4 18 8
23	0	0.093 8187		0.995 5893		0.094 2344		10.611 841		0	37	
	10	8670	483	5847	46	2833	489	.606 336	5 505	50		5 22 5 23 0 23 5
	20	9152	482	5802	45	3322	489	.600 837	5 499	40		6 27 0 27 6 28 2
	30	9635	483	5756	46	3811	489	.595 343	5 494	30		7 31 5 32 2 32 9
	40	0 094 0118	483	5711	45	4300	489	.589 855	5 488	20		8 36 0 36 8 37 6
	50	0600	482	5665	46	4789	489	.584 372	5 483	10		9 40 5 41 4 42 3
			483		45		489		5 477			
24	0	0.094 1083		0.995 5620		0.094 6278		10.578 895		0	36	
	10	1566	483	5574	46	5767	489	.573 424	5 471	50		Tangent
	20	2048	482	5528	46	6257	490	.567 958	5 466	40		489 490
	30	2531	483	5483	45	6746	489	.562 498	5 460	30		1 48 9 49 0
	40	3014	483	5437	46	7235	489	.557 043	5 455	20		2 97 8 98 0
	50	3496	482	5391	46	7724	489	.551 594	5 449	10		3 146 7 147 0
			483		46		489		5 443			4 195 6 196 0
25	0	0.094 3979		0.995 5345		0.094 8213		10 546 151		0	35	
	10	4462	483	5300	45	8702	489	.540 713	5 438	50		5 244 5 245 0
	20	4944	482	5254	46	9192	490	.535 281	5 432	40		6 293 4 294 0
	30	5427	483	5208	46	9681	489	.529 854	5 427	30		7 342 3 343 0
	40	5910	483	5162	46	0 095 0170	489	.524 433	5 421	20		8 391 2 392 0
	50	6392	482	5116	46	0659	489	.519 017	5 416	10		9 440 1 441 0
			483		46		489		5 410			
26	0	0.094 6875		0.995 5070		0.095 1148		10.513 607		0	34	
	10	7358	483	5025	45	1638	490	.508 202	5 405	50		Cotangent
	20	7840	482	4979	46	2127	489	.502 803	5 399	40		5600 5500
	30	8323	483	4933	46	2616	489	.497 409	5 394	30		1 560 0 550 0
	40	8805	482	4887	46	3105	489	.492 021	5 388	20		2 1120 0 1100 0
	50	9288	483	4841	46	3594	489	.486 638	5 383	10		3 1680 0 1650 0
			483		46		490		5 377			4 2240 0 2200 0
27	0	0 094 9771		0 995 4795		0.095 4084		10.481 261		0	33	
	10	0.095 0253	482	4749	46	4573	489	.475 889	5 372	50		5 2800 0 2750 0
	20	0736	483	4702	47	5062	489	.470 523	5 366	40		6 3360 0 3300 0
	30	1219	483	4656	46	5551	489	.465 162	5 361	30		7 3920 0 3850 0
	40	1701	482	4610	46	6041	490	.459 807	5 355	20		8 4480 0 4400 0
	50	2184	483	4564	46	6530	489	.454 457	5 350	10		9 5040 0 4950 0
			482		46		489		5 345			
28	0	0.095 2666		0.995 4518		0 095 7019		10.449 112		0	32	
	10	3149	483	4472	46	7508	489	.443 773	5 339	50		5400 5300
	20	3632	483	4425	47	7998	490	.438 439	5 334	40		1 540 0 530 0
	30	4114	482	4379	46	8487	489	.433 111	5 328	30		2 1080 0 1060 0
	40	4597	483	4333	46	8976	489	.427 788	5 323	20		3 1620 0 1590 0
	50	5079	482	4287	46	9465	489	.422 470	5 318	10		4 2160 0 2120 0
			483		47		490		5 312			5 2700 0 2650 0
29	0	0.095 5562		0.995 4240		0 095 9955		10.417 158		0	31	
	10	6045	483	4194	46	0 096 0444	489	.411 851	5 307	50		6 3240 0 3180 0
	20	6527	482	4148	45	0933	489	.406 550	5 301	40		7 3780 0 3710 0
	30	7010	483	4101	47	1423	490	.401 254	5 296	30		8 4320 0 4240 0
	40	7492	482	4055	46	1912	489	.395 963	5 291	20		9 4860 0 4770 0
	50	7975	483	4008	47	2401	489	.390 677	5 286	10		5200
			483		46		489		5 280			1 520 0
30	0	0.095 8458		0.995 3962		0.096 2890		10.385 397		0	30	
												2 1040 0
												3 1560 0
												4 2080 0
												5 2600 0
												6 3120 0
												7 3640 0
												8 4160 0
												9 4680 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

84° 30'

5° 30'

	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
30	0	0.095 8458		0.995 3962		0.096 2890		10.385 397		0	30	
	10	8940	482	3916	46	3380	490	.380 122	5 275	50		Sine
	20	9423	483	3869	47	3869	489	.374 853	5 269	40		482 483
	30	9905	482	3822	47	4358	490	.369 588	5 265	30		1 48 2 48 3
	40	0.096 0388	483	3776	46	4848	489	.364 329	5 259	20		2 96 4 96 6
	50	0870	482	3729	47	5337	489	.359 076	5 253	10		3 141 6 144 9
			483		46				5 249			4 192 8 193 2
31	0	0.096 1353		0.995 3683		0.096 5826		10.353 827		0	29	
	10	1836	483	3636	47	6316	490	.348 584	5 243	50		5 241 0 241 5
	20	2318	482	3589	46	6805	489	.343 346	5 238	40		6 289 2 289 8
	30	2801	483	3543	47	7294	489	.338 114	5 232	30		7 337 4 338 1
	40	3283	482	3496	47	7784	490	.332 886	5 228	20		8 385 6 386 4
	50	3766	483	3449	47	8273	489	.327 664	5 222	10		9 433 8 434 7
			482		46				5 217			
32	0	0.096 4248		0.995 3403		0.096 8763		10.322 447		0	28	
	10	4731	483	3356	47	9252	489	.317 236	5 211	50		Cosine
	20	5213	482	3309	47	9741	489	.312 029	5 207	40		46 47 48
	30	5696	483	3262	46	0.097 0231	490	.306 828	5 201	30		1 4 6 4 7 4 8
	40	6179	482	3216	46	0720	489	.301 632	5 196	20		2 9 2 9 1 9 6
	50	6661	483	3169	47	1209	489	.296 441	5 191	10		3 13 8 14 1 14 4
					47				5 186			4 18 4 18 8 19 2
33	0	0.096 7144		0.995 3122		0.097 1699		10.291 255		0	27	
	10	7626	482	3075	47	2188	489	.286 075	5 180	50		5 23 0 23 5 24 0
	20	8109	483	3028	47	2678	490	.280 899	5 176	40		6 27 6 28 2 28 8
	30	8591	482	2981	47	3167	489	.275 729	5 170	30		7 32 2 32 9 33 6
	40	9074	483	2934	47	3656	489	.270 564	5 165	20		8 36 8 37 6 38 4
	50	9556	482	2887	47	4146	490	.265 404	5 160	10		9 41 4 42 3 43 2
			483		47				5 155			
34	0	0.097 0039		0.995 2840		0.097 4635		10.260 249		0	26	
	10	0521	482	2793	47	5125	490	.255 099	5 150	50		Tangent
	20	1004	483	2746	47	5614	489	.249 955	5 144	40		489 490
	30	1486	482	2699	47	6103	489	.244 815	5 140	30		1 48 9 49 0
	40	1969	483	2652	47	6593	490	.239 681	5 134	20		2 97 8 98 0
	50	2451	482	2605	47	7082	489	.234 552	5 129	10		3 146 7 147 0
			483		48				5 124			4 195 6 196 0
35	0	0.097 2934		0.995 2557		0.097 7572		10.229 428		0	25	
	10	3416	482	2510	47	8061	489	.224 308	5 120	50		5 244 5 245 0
	20	3899	483	2463	47	8551	490	.219 194	5 114	40		6 293 4 294 0
	30	4381	482	2416	47	9040	489	.214 085	5 109	30		7 342 3 343 0
	40	4864	483	2369	47	9530	490	.208 982	5 103	20		8 391 2 392 0
	50	5346	482	2321	48	0.098 0019	489	.203 883	5 099	10		9 440 1 441 0
			483		47				5 094			
36	0	0.097 5829		0.995 2274		0.098 0509		10.198 789		0	24	
	10	6311	482	2227	47	0998	489	.193 700	5 089	50		Cotangent
	20	6794	483	2179	48	1488	490	.188 616	5 084	40		5300 5200
	30	7276	482	2132	47	1977	489	.183 538	5 078	30		1 530 0 520 0
	40	7759	483	2085	47	2467	490	.178 464	5 074	20		2 1060 0 1040 0
	50	8241	482	2037	48	2956	489	.173 395	5 069	10		3 1590 0 1560 0
			483		47				5 063			4 2120 0 2080 0
37	0	0.097 8724		0.995 1990		0.098 3446		10.168 332		0	23	
	10	9206	482	1942	48	3935	489	.163 273	5 059	50		5 2650 0 2600 0
	20	9689	483	1895	47	4425	490	.158 219	5 054	40		6 3180 0 3120 0
	30	0.098 0171	482	1847	48	4914	489	.153 170	5 049	30		7 3710 0 3640 0
	40	0654	483	1800	48	5404	490	.148 127	5 043	20		8 4240 0 4160 0
	50	1136	482	1752	48	5893	489	.143 088	5 039	10		9 4770 0 4680 0
			483		47				5 034			
38	0	0.098 1619		0.995 1705		0.098 6383		10.138 054		0	22	
	10	2101	482	1657	48	6872	489	.133 025	5 029	50		5100 5000
	20	2584	483	1609	47	7362	490	.128 001	5 024	40		1 510 0 500 0
	30	3066	482	1562	47	7851	489	.122 982	5 019	30		2 1020 0 1000 0
	40	3549	483	1514	48	8341	490	.117 968	5 014	20		3 1530 0 1500 0
	50	4031	482	1466	48	8830	489	.112 959	5 009	10		4 2040 0 2000 0
			483		47				5 005			5 2550 0 2500 0
39	0	0.098 4514		0.995 1419		0.098 9320		10.107 954		0	21	
	10	4996	482	1371	48	9809	489	.102 955	4 999	50		6 3060 0 3000 0
	20	5479	483	1323	48	0.099 0299	490	.097 960	4 995	40		7 3570 0 3500 0
	30	5961	482	1275	47	0789	489	.092 971	4 985	30		8 4080 0 4000 0
	40	6443	483	1228	48	1278	490	.087 986	4 980	20		9 4590 0 4500 0
	50	6926	482	1180	48	1768	489	.083 006	4 975	10		
					47							4900
40	0	0.098 7408		0.995 1132		0.099 2257		10.078 031		0	20	
												1 490 0
												2 980 0
												3 1470 0
												4 1960 0
												5 2450 0
												6 2940 0
												7 3430 0
												8 3920 0
												9 4410 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff.	"	'	Proportional Parts

84° 20'

5° 40'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff.			Proportional Parts
40	0	0.098 7408	483	0.995 1132	48	0.099 2257	490	10.078 031	4 970	0	20	
	10	7891	482	1084	48	2747	489	.073 061	4 965	50		
	20	8373	483	1036	48	3236	490	.068 096	4 961	40		
	30	8856	482	0988	48	3726	490	.063 135	4 955	30		
	40	9338	483	0940	48	4216	490	.058 180	4 951	20		
	50	9821	482	0892	48	4705	490	.053 229	4 946	10		
41	0	0.099 0303	482	0.995 0844	48	0.099 5195	490	10.048 283	4 941	0	19	Sine
	10	0785	483	0796	48	5685	489	.043 342	4 937	50		482 483
	20	1268	482	0748	48	6174	490	.038 405	4 931	40		1 48 2 48 3
	30	1750	483	0700	48	6664	489	.033 474	4 927	30		2 96 4 96 6
	40	2233	482	0652	48	7153	490	.028 547	4 922	20		3 144 6 144 9
	50	2715	482	0604	48	7643	490	.023 625	4 917	10		4 192 8 193 2
42	0	0.099 3197	483	0.995 0556	48	0.099 8133	489	10.018 708	4 912	0	18	5 241 0 241 5
	10	3680	482	0508	49	8622	490	.013 796	4 908	50		6 289 2 289 8
	20	4162	483	0459	48	9112	489	.008 888	4 903	40		7 337 4 338 1
	30	4645	482	0411	48	9602	490	.003 985	4 898	30		8 385 6 386 4
	40	5127	483	0363	48	0.100 0091	490	9.999 0870	4 893	20		9 433 8 434 7
	50	5610	482	0315	49	0581	490	994 1936	4 886	10		
43	0	0.099 6092	482	0.995 0266	48	0.100 1071	489	9.989 3050	4 883	0	17	Cosine
	10	6574	483	0218	48	1560	490	984 4211	4 879	50		48 49 50
	20	7057	482	0170	48	2050	490	979 5420	4 874	40		1 4 8 4 9 5 0
	30	7539	483	0121	49	2540	490	.974 6675	4 870	30		2 9 6 9 8 10 0
	40	8022	482	0073	48	3029	489	.969 7978	4 867	20		3 14 1 14 7 15 0
	50	8504	482	0025	49	3519	490	.964 9328	4 864	10		4 19 2 19 6 20 0
44	0	0.099 8986	483	0.994 9976	48	0.100 4009	489	9.960 0724	4 856	0	16	5 24 0 24 5 25 0
	10	9469	482	9928	48	4498	490	.955 2168	4 851	50		6 28 8 29 4 30 0
	20	9951	483	9879	48	4988	490	.950 3659	4 846	40		7 33 6 34 3 35 0
	30	0.100 0433	482	9831	49	5478	490	.945 5196	4 841	30		8 38 4 39 2 40 0
	40	0916	483	9782	48	5968	489	.940 6780	4 837	20		9 43 2 44 1 45 0
	50	1398	482	9734	49	6457	490	.935 8410	4 832	10		
45	0	0.100 1881	482	0.994 9685	48	0.100 6947	490	9.931 0088	4 827	0	15	Tangent
	10	2363	483	9637	49	7437	490	926 1811	4 823	50		489 490
	20	2845	482	9588	48	7927	489	.921 3582	4 819	40		1 48 9 49 0
	30	3328	483	9539	49	8416	490	.916 5398	4 814	30		2 97 8 98 0
	40	3810	482	9491	48	8906	490	.911 7261	4 810	20		3 146 7 147 0
	50	4292	483	9442	49	9396	490	.906 9170	4 805	10		4 195 6 196 0
46	0	0.100 4775	482	0.994 9393	48	0.100 9886	489	9.902 1125	4 798	0	14	5 244 5 245 0
	10	5257	483	9345	49	0.101 0375	490	.897 3127	4 793	50		6 293 4 294 0
	20	5740	482	9296	48	0865	490	.892 5174	4 789	40		7 342 3 343 0
	30	6222	483	9247	49	1355	490	.887 7267	4 784	30		8 391 2 392 0
	40	6704	482	9198	48	1845	489	.882 9407	4 779	20		9 440 1 441 0
	50	7187	483	9149	49	2334	490	.878 1592	4 774	10		
47	0	0.100 7669	482	0.994 9101	49	0.101 2824	490	9.873 3823	4 769	0	13	Cotangent
	10	8151	483	9052	49	3314	490	.868 6099	4 764	50		50 000 49 000
	20	8634	482	9003	48	3804	490	.863 8422	4 759	40		1 5 000 0 4 900 0
	30	9116	483	8954	49	4294	490	.859 0789	4 754	30		2 10 000 0 9 800 0
	40	9598	482	8905	48	4783	489	.854 3203	4 749	20		3 15 000 0 14 700 0
	50	0.101 0081	483	8856	49	5273	490	.849 5662	4 744	10		4 20 000 0 19 600 0
48	0	0.101 0563	482	0.994 8807	49	0.101 5763	490	9.844 8166	4 739	0	12	5 25 000 0 24 500 0
	10	1045	483	8758	49	6253	490	.840 0715	4 734	50		6 30 000 0 29 400 0
	20	1528	482	8709	48	6743	489	.835 3310	4 729	40		7 35 000 0 34 300 0
	30	2010	483	8660	49	7232	490	.830 5950	4 724	30		8 40 000 0 39 200 0
	40	2492	482	8611	48	7722	490	.825 8635	4 719	20		9 45 000 0 44 100 0
	50	2975	483	8562	49	8212	490	.821 1365	4 714	10		
49	0	0.101 3457	482	0.994 8513	49	0.101 8702	490	9.816 4140	4 709	0	11	48 000 47 000
	10	3939	483	8464	49	9192	490	.811 6960	4 704	50		1 4 800 0 4 700 0
	20	4422	482	8414	50	9682	490	.806 9825	4 700	40		2 9 600 0 9 400 0
	30	4904	483	8365	49	0.102 0171	490	.802 2735	4 695	30		3 14 400 0 14 100 0
	40	5386	482	8316	49	0661	490	.797 5689	4 691	20		4 19 200 0 18 800 0
	50	5868	483	8267	50	1151	490	.792 8688	4 686	10		5 24 000 0 23 500 0
50	0	0.101 6351		0.994 8217		0.102 1641		9.788 1732		0	10	6 28 800 0 28 200 0
												7 33 600 0 32 900 0
												8 38 400 0 37 600 0
												9 43 200 0 42 300 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

84° 10'

5° 50'

	'	"	Sine	Diff.	Cosine	Diff.	Tangent	Diff.	Cotangent	Diff.			Proportional Parts
50	0		0.101 6351		0.994 8217		0.102 1641		9.788 1732		0	10	
	10		6833	482	8168	49	2131	490	.783 4820	46 912	50		
	20		7315	482	8119	49	2621	490	.778 7953	46 867	40		
	30		7798	482	8070	49	3111	490	.774 1130	46 823	30		
	40		8280	482	8020	50	3601	490	.769 4352	46 778	20		
	50		8762	482	7971	49	4091	490	.764 7617	46 735	10		
				483		50		489		46 690			
51	0		0.101 9245		0.994 7921		0.102 4580		9.760 0927		0	9	Sine
	10		9727	482	7872	49	5070	490	.755 4282	46 645	50		482 483
	20		0.102 0209	482	7823	49	5560	490	.750 7680	46 602	40		1 48 2 48 3
	30		0691	482	7773	50	6050	490	.746 1122	46 558	30		2 96 4 96 6
	40		1174	483	7724	49	6540	490	.741 4609	46 513	20		3 144 6 144 9
	50		1656	482	7674	50	7030	490	.736 8139	46 470	10		4 192 8 193 2
				482		49		490		46 426			5 241 0 241 5
52	0		0.102 2138		0.994 7625		0.102 7520		9.732 1713		0	8	6 289 2 289 8
	10		2621	483	7575	50	8010	490	.727 5331	46 382	50		7 337 4 338 1
	20		3103	482	7525	50	8500	490	.722 8992	46 339	40		8 385 6 386 4
	30		3585	482	7476	49	8990	490	.718 2698	46 294	30		9 433 8 434 7
	40		4067	482	7426	50	9480	490	.713 6446	46 252	20		
	50		4550	483	7376	50	9970	490	.709 0239	46 207	10		
				482		49		490		46 164			Cosine
53	0		0.102 5032		0.994 7327		0.103 0460		9.704 4075		0	7	49 50 51
	10		5514	482	7277	50	0950	490	.699 7954	46 121	50		1 4 9 5 0 5 1
	20		5996	482	7227	49	1440	490	.695 1877	46 077	40		2 9 8 10 0 10 2
	30		6479	482	7178	50	1930	490	.690 5843	46 034	30		3 14 7 15 0 15 3
	40		6961	483	7128	50	2420	490	.685 9852	45 991	20		4 19 6 20 0 20 4
	50		7443	482	7078	50	2909	489	.681 3904	45 948	10		5 24 5 25 0 25 5
				482		50		490		45 904			6 29 4 30 0 30 6
54	0		0.102 7925		0.994 7028		0.103 3399		9.676 8000		0	6	7 34 3 35 0 35 7
	10		8408	483	6978	50	3889	490	.672 2138	45 862	50		8 39 2 40 0 40 8
	20		8890	482	6928	50	4379	490	.667 6320	45 818	40		9 44 1 45 0 45 9
	30		9372	482	6879	49	4869	490	.663 0544	45 776	30		
	40		9854	482	6829	50	5359	490	.658 4812	45 732	20		Tangent
	50		0.103 0337	483	6779	50	5849	490	.653 9122	45 690	10		489 490 491
				482		50		491		45 647			1 48 9 49 0 49 1
55	0		0.103 0819		0.994 6729		0.103 6340		9.649 3475		0	5	2 97 8 98 0 98 2
	10		1301	482	6679	50	6830	490	.644 7870	45 605	50		3 146 7 147 0 147 3
	20		1783	482	6629	50	7320	490	.640 2308	45 562	40		4 195 6 196 0 196 4
	30		2265	482	6579	50	7810	490	.635 6789	45 519	30		5 244 5 245 0 245 5
	40		2748	483	6529	50	8300	490	.631 1312	45 477	20		6 293 4 294 0 294 6
	50		3230	482	6479	50	8790	490	.626 5878	45 434	10		7 342 3 343 0 343 7
				482		51		490		45 392			8 391 2 392 0 392 8
56	0		0.103 3712		0.994 6428		0.103 9280		9.622 0486		0	4	9 440 1 441 0 441 9
	10		4194	482	6378	50	9770	490	.617 5137	45 349	50		
	20		4677	483	6328	50	0.104 0260	490	.612 9829	45 308	40		Cotangent
	30		5159	482	6278	50	0750	490	.608 4564	45 265	30		47 000 48 000
	40		5641	482	6228	50	1240	490	.603 9341	45 223	20		1 4 700 0 4 600 0
	50		6123	482	6178	51	1730	490	.599 4160	45 181	10		2 9 400 0 9 200 0
				482		51		490		45 138			3 14 100 0 13 800 0
57	0		0.103 6605		0.994 6127		0.104 2220		9.594 9022		0	3	4 18 800 0 18 400 0
	10		7088	483	6077	50	2710	490	.590 3925	45 097	50		5 23 500 0 23 000 0
	20		7570	482	6027	51	3200	490	.585 8870	45 055	40		6 28 200 0 27 600 0
	30		8052	482	5976	50	3690	490	.581 3857	45 013	30		7 32 900 0 32 200 0
	40		8534	482	5926	50	4180	490	.576 8886	44 971	20		8 37 600 0 36 800 0
	50		9016	482	5876	51	4671	491	.572 3956	44 930	10		9 42 300 0 41 400 0
				483		51		490		44 888			
58	0		0.103 9499		0.994 5825		0.104 5161		9.567 9068		0	2	45 000 46 000
	10		9981	482	5775	50	5651	490	.563 4222	44 846	50		1 4 500 0 4 400 0
	20		0.104 0463	482	5725	51	6141	490	.558 9417	44 805	40		2 9 000 0 8 800 0
	30		0945	482	5674	50	6631	490	.554 4654	44 763	30		3 13 500 0 13 200 0
	40		1427	482	5624	51	7121	490	.549 9933	44 721	20		4 18 000 0 17 600 0
	50		1909	483	5573	50	7611	490	.545 5252	44 681	10		5 22 500 0 22 000 0
				483		51		490		44 639			6 27 000 0 26 400 0
59	0		0.104 2392		0.994 5523		0.104 8101		9.541 0613		0	1	7 31 500 0 30 800 0
	10		2874	482	5472	51	8592	491	.536 6016	44 597	50		8 36 000 0 35 200 0
	20		3356	482	5421	51	9082	490	.532 1459	44 557	40		9 40 500 0 39 600 0
	30		3838	482	5371	51	9572	490	.527 6944	44 515	30		
	40		4320	482	5320	51	0.105 0062	490	.523 2470	44 474	20		
	50		4802	483	5270	51	0552	490	.518 8037	44 433	10		
				483		51		490		44 392			
60	0		0.104 5285		0.994 5219		0.105 1042		9.514 3645		0	0	
			Cosine	Diff.	Sine	Diff.	Cotangent	Diff.	Tangent	Diff.	"	'	Proportional Parts

84° 00'

6° 00'

'	"	Sine	Diff.	Cosine	Diff.	Tangent	Diff.	Cotangent	Diff.			Proportional Parts
0	0	0.104 5285		0.994 5219		0.105 1042		9.514 3645		0	60	
	10	5767	482	5168	51	1533	491	.509 9293	44 352	50		
	20	6249	482	5118	50	2023	490	.505 4983	44 310	40		
	30	6731	482	5067	51	2513	490	.501 0713	44 270	30		
	40	7213	482	5016	51	3003	490	.496 6485	44 228	20		
	50	7695	482	4965	51	3493	490	.492 2297	44 188	10		
			483		51				44 148			
1	0	0.104 8178		0.994 4914		0.105 3983		9.487 8149		0	59	
	10	8660	482	4864	50	4474	491	.483 4043	44 106	50		
	20	9142	482	4813	51	4964	490	.478 9976	44 067	40		
	30	9624	482	4762	51	5454	490	.474 5951	44 025	30		
	40	0.105 0106	482	4711	51	5944	490	.470 1965	43 986	20		
	50	0588	482	4660	51	6435	491	.465 8020	43 945	10		
			482		51				43 904			
2	0	0.105 1070		0.994 4609		0.105 6925		9.461 4116		0	58	
	10	1552	482	4558	51	7415	490	.457 0251	43 865	50		
	20	2035	483	4507	51	7905	490	.452 6427	43 824	40		
	30	2517	482	4456	51	8395	490	.448 2643	43 784	30		
	40	2999	482	4405	51	8886	491	.443 8899	43 744	20		
	50	3481	482	4354	51	9376	490	.439 5195	43 704	10		
			482		51				43 664			
3	0	0.105 3963		0.994 4303		0.105 9866		9.435 1531		0	57	
	10	4445	482	4252	51	0.106 0356	490	.430 7907	43 624	50		
	20	4927	482	4201	51	0847	491	.426 4323	43 584	40		
	30	5409	483	4150	51	1337	490	.422 0779	43 544	30		
	40	5892	482	4098	52	1827	490	.417 7274	43 505	20		
	50	6374	482	4047	51	2318	491	.413 3809	43 465	10		
			482		51				43 425			
4	0	0.105 6856		0.994 3996		0.106 2808		9.409 0384		0	56	
	10	7338	482	3945	51	3298	490	.404 6999	43 385	50		
	20	7820	482	3893	52	3788	490	.400 3653	43 346	40		
	30	8302	482	3842	51	4279	491	.396 0346	43 307	30		
	40	8784	482	3791	51	4769	490	.391 7079	43 267	20		
	50	9266	482	3739	52	5259	490	.387 3851	43 228	10		
			482		51				43 188			
5	0	0.105 9748		0.994 3688		0.106 5750		9.383 0663		0	55	
	10	0.106 0230	482	3637	51	6240	490	.378 7514	43 149	50		
	20	0712	482	3585	52	6730	490	.374 4404	43 110	40		
	30	1194	482	3534	51	7221	491	.370 1333	43 071	30		
	40	1677	483	3482	52	7711	490	.365 8301	43 032	20		
	50	2159	482	3431	51	8201	490	.361 5309	42 992	10		
			482		52				42 954			
6	0	0.106 2641		0.994 3379		0.106 8692		9.357 2355		0	54	
	10	3123	482	3328	51	9182	490	.352 9441	42 914	50		
	20	3605	482	3276	52	9672	490	.348 6565	42 876	40		
	30	4087	482	3225	51	0.107 0163	491	.344 3728	42 837	30		
	40	4569	482	3173	52	0653	490	.340 0930	42 798	20		
	50	5051	482	3122	51	1144	491	.335 8171	42 759	10		
			482		52				42 721			
7	0	0.106 5533		0.994 3070		0.107 1634		9.331 5450		0	53	
	10	6015	482	3018	52	2124	490	.327 2768	42 682	50		
	20	6497	482	2967	51	2615	491	.323 0125	42 643	40		
	30	6979	482	2915	52	3105	490	.318 7520	42 605	30		
	40	7461	482	2863	52	3595	490	.314 4954	42 566	20		
	50	7943	482	2811	51	4086	491	.310 2426	42 528	10		
			482		51				42 490			
8	0	0.106 8425		0.994 2760		0.107 4576		9.305 9936		0	52	
	10	8907	482	2708	52	5067	491	.301 7485	42 451	50		
	20	9389	482	2656	52	5557	490	.297 5072	42 413	40		
	30	9871	482	2604	52	6048	491	.293 2697	42 375	30		
	40	0.107 0353	483	2552	52	6538	490	.289 0360	42 337	20		
	50	0836	482	2500	52	7028	491	.284 8062	42 298	10		
			482		52				42 260			
9	0	0.107 1318		0.994 2448		0.107 7519		9.280 5802		0	51	
	10	1800	482	2396	52	8009	490	.276 3579	42 223	50		
	20	2282	482	2344	52	8500	491	.272 1395	42 184	40		
	30	2764	482	2292	52	8990	490	.267 9248	42 147	30		
	40	3246	482	2240	52	9481	491	.263 7139	42 109	20		
	50	3728	482	2188	52	9971	491	.259 5069	42 070	10		
			482		52				42 034			
10	0	0.107 4210		0.994 2136		0.108 0462		9.255 3035		0	50	
		Cosine	Diff.	Sine	Diff.	Cotangent	Diff.	Tangent	Diff.	"	'	Proportional Parts

83° 50'

6° 10'

'	"	Sine	Diff.	Cosine	Diff.	Tangent	Diff.	Cotangent	Diff.			Proportional Parts
10	0	0.107 4210		0.994 2136		0.108 0462		9.255 3035		0	50	
	10	4692	482	2084	52	0952	490	.251 1040	41 995	50		
	20	5174	482	2032	52	1443	491	.246 9082	41 958	40		
	30	5656	482	1980	52	1933	490	.242 7162	41 920	30		
	40	6138	482	1928	52	2424	491	.238 5279	41 883	20		
	50	6620	482	1876	52	2914	490	.234 3434	41 845	10		
			482		53		491		41 807			
11	0	0.107 7102		0.994 1823		0.108 3405		9.230 1627		0	49	
	10	7584	482	1771	52	3895	490	.225 9856	41 771	50		
	20	8066	482	1719	52	4386	491	.221 8123	41 733	40		
	30	8548	482	1667	52	4876	490	.217 6428	41 695	30		
	40	9030	482	1614	53	5367	491	.213 4770	41 658	20		
	50	9512	482	1562	52	5857	490	.209 3148	41 622	10		
			482		52		491		41 584			
12	0	0.107 9994		0.994 1510		0.108 6348		9.205 1564		0	48	
	10	0 108 0476	482	1457	53	6838	490	.201 0017	41 547	50		
	20	0958	482	1405	52	7329	491	.196 8508	41 509	40		
	30	1439	481	1352	53	7819	490	.192 7035	41 473	30		
	40	1921	482	1300	52	8310	491	.188 5599	41 436	20		
	50	2403	482	1248	52	8800	490	.184 4200	41 399	10		
			482		53		491		41 362			
13	0	0.108 2885		0.994 1195		0 108 9291		9 180 2838		0	47	
	10	3367	482	1143	52	9782	491	.176 1512	41 326	50		
	20	3849	482	1090	53	0 109 0272	490	.172 0224	41 288	40		
	30	4331	482	1037	53	0763	491	.167 8972	41 252	30		
	40	4813	482	0985	52	1253	490	.163 7756	41 216	20		
	50	5295	482	0932	53	1744	491	.159 6578	41 178	10		
			482		52		490		41 142			
14	0	0.108 5777		0.994 0880		0.109 2234		9.155 5436		0	46	
	10	6259	482	0827	53	2725	491	.151 4330	41 106	50		
	20	6741	482	0774	53	3216	491	.147 3261	41 069	40		
	30	7223	482	0722	52	3706	490	.143 2228	41 033	30		
	40	7705	482	0669	53	4197	491	.139 1232	40 996	20		
	50	8187	482	0616	53	4687	490	.135 0272	40 960	10		
			482		53		491		40 924			
15	0	0 108 8669		0.994 0563		0.109 5178		9 130 9348		0	45	
	10	9151	482	0511	52	5669	491	.126 8461	40 887	50		
	20	9633	482	0458	53	6159	490	.122 7609	40 852	40		
	30	0 109 0115	481	0405	53	6650	491	.118 6794	40 815	30		
	40	0596	482	0352	53	7141	490	.114 6015	40 779	20		
	50	1078	482	0299	53	7631	491	.110 5272	40 743	10		
			482		53		491		40 708			
16	0	0 109 1560		0 994 0246		0.109 8122		9.106 4564		0	44	
	10	2042	482	0193	53	8613	491	.102 3893	40 671	50		
	20	2524	482	0140	53	9103	490	.098 3258	40 635	40		
	30	3006	482	0087	53	9594	491	.094 2658	40 600	30		
	40	3488	482	0034	53	0 110 0085	491	.090 2094	40 564	20		
	50	3970	482	0 993 9981	53	0575	490	.086 1566	40 528	10		
			482		53		491		40 492			
17	0	0.109 4452		0 993 9928		0.110 1066		9 082 1074		0	43	
	10	4934	482	9875	53	1557	491	.078 0617	40 457	50		
	20	5416	482	9822	53	2047	490	.074 0196	40 421	40		
	30	5897	481	9769	53	2538	491	.069 9811	40 385	30		
	40	6379	482	9716	53	3029	491	.065 9461	40 350	20		
	50	6861	482	9663	53	3520	491	.061 9146	40 315	10		
			482		53		490		40 279			
18	0	0.109 7343		0.993 9610		0.110 4010		9 057 8867		0	42	
	10	7825	482	9556	54	4501	491	.053 8623	40 244	50		
	20	8307	482	9503	53	4992	491	.049 8415	40 208	40		
	30	8789	482	9450	53	5482	490	.045 8241	40 174	30		
	40	9271	482	9397	53	5973	491	.041 8103	40 138	20		
	50	9753	482	9343	54	6464	491	.037 8000	40 103	10		
			481		53		491		40 067			
19	0	0.110 0234		0.993 9290		0.110 6955		9.033 7933		0	41	
	10	0716	482	9237	53	7445	490	.029 7900	40 033	50		
	20	1198	482	9183	54	7936	491	.025 7902	39 998	40		
	30	1680	482	9130	53	8427	491	.021 7940	39 962	30		
	40	2162	482	9076	54	8918	491	.017 8012	39 928	20		
	50	2644	482	9023	53	9409	491	.013 8119	39 893	10		
			482		54		490		39 858			
20	0	0.110 3126		0 993 8969		0.110 9899		9.009 8261		0	40	
		Cosine	Diff.	Sine	Diff.	Cotangent	Diff.	Tangent	Diff.	"	'	Proportional Parts

83° 40'

6° 20'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff.			Proportional Parts
20	0	0.110 3126		0.993 8969		0.110 9899		9.009 8261		0	40	
	10	3607	481	8916	53	0.111 0390	491	.005 8438	39 823	50		
	20	4089	482	8862	54	0881	491	.001 8650	39 788	40		
	30	4571	482	8809	53	1372	491	8.907 8896	39 754	30		
	40	5053	482	8755	54	1863	491	.993 9177	39 719	20		
	50	5535	482	8702	53	2353	490	.989 9493	39 684	10		
			482		54		491		39 650			
21	0	0.110 6017		0.993 8648		0.111 2844		8.985 9843		0	39	
	10	6498	481	8595	53	3335	491	.958 3259	39 615	50		
	20	6980	482	8541	54	3826	491	.978 0647	39 581	40		
	30	7462	482	8487	54	4317	491	.974 1101	39 546	30		
	40	7944	482	8433	53	4807	490	.970 1589	39 512	20		
	50	8426	482	8380	54	5298	491	.966 2111	39 478	10		
			482		54				39 443			
22	0	0.110 8908		0.993 8326		0.111 5789		8.962 2668		0	38	
	10	9389	481	8272	54	6280	491	.958 3259	39 409	50		
	20	9871	482	8218	54	6771	491	.954 3884	39 375	40		
	30	0 111 0353	482	8165	53	7262	491	.950 4544	39 340	30		
	40	0835	482	8111	54	7753	491	.946 5237	39 307	20		
	50	1317	482	8057	54	8243	490	.942 5965	39 272	10		
			482		54		491		39 239			
23	0	0 111 1799		0.993 8003		0 111 8734		8 938 6726		0	37	
	10	2280	481	7949	54	9225	491	.934 7522	39 204	50		
	20	2762	482	7895	54	9716	491	.930 8352	39 170	40		
	30	3244	482	7841	54	0.112 0207	491	.926 9215	39 137	30		
	40	3726	482	7787	54	0698	491	.923 0112	39 103	20		
	50	4208	482	7733	54	1189	491	.919 1044	39 068	10		
			481		54				39 035			
24	0	0.111 4689		0.993 7679		0.112 1680		8 915 2009		0	36	
	10	5171	482	7625	54	2171	491	.911 3007	39 002	50		
	20	5653	482	7571	54	2662	491	.907 4040	38 967	40		
	30	6135	482	7517	54	3152	490	.903 5105	38 935	30		
	40	6616	481	7463	54	3643	491	.899 6205	38 900	20		
	50	7098	482	7409	54	4134	491	.895 7338	38 867	10		
			482		54				38 833			
25	0	0 111 7580		0.993 7355		0.112 4625		8 891 8505		0	35	
	10	8062	482	7300	55	5116	491	.887 9705	38 800	50		
	20	8544	482	7246	54	5607	481	.884 0939	38 766	40		
	30	9025	481	7192	54	6098	491	.880 2205	38 734	30		
	40	9507	482	7138	54	6589	491	.876 3506	38 699	20		
	50	9989	482	7083	55	7080	491	.872 4839	38 667	10		
			482		54				38 633			
26	0	0 112 0471		0 993 7029		0.112 7571		8.868 6206		0	34	
	10	0952	481	6975	54	8062	491	.864 7606	38 600	50		
	20	1434	482	6920	55	8553	491	.860 9039	38 567	40		
	30	1916	482	6866	54	9044	491	.857 0506	38 533	30		
	40	2398	482	6812	54	9535	491	.853 2005	38 501	20		
	50	2879	481	6757	55	0 113 0026	491	.849 3537	38 468	10		
			482		54				38 434			
27	0	0 112 3361		0.993 6703		0 113 0517		8.845 5103		0	33	
	10	3843	482	6648	55	1008	491	.841 6701	38 402	50		
	20	4325	482	6594	55	1499	491	.837 8332	38 369	40		
	30	4806	481	6539	55	1990	491	.833 9996	38 336	30		
	40	5288	482	6485	54	2481	491	.830 1693	38 303	20		
	50	5770	482	6430	55	2972	491	.826 3423	38 270	10		
			482		55				38 237			
28	0	0.112 6252		0 993 6375		0.113 3463		8.822 5186		0	32	
	10	6733	481	6321	54	3954	491	.818 6981	38 205	50		
	20	7215	482	6266	55	4445	491	.814 8809	38 172	40		
	30	7697	482	6212	54	4936	491	.811 0669	38 140	30		
	40	8178	481	6157	55	5427	491	.807 2562	38 107	20		
	50	8660	482	6102	55	5918	491	.803 4488	38 074	10		
			482		55		492		38 042			
29	0	0.112 9142		0.993 6047		0.113 6410		8.799 6446		0	31	
	10	9624	482	5993	54	6901	491	.795 8436	38 010	50		
	20	0.113 0105	481	5938	55	7392	491	.792 0459	37 977	40		
	30	0587	482	5883	55	7883	491	.788 2514	37 945	30		
	40	1069	482	5828	55	8374	491	.784 4602	37 912	20		
	50	1550	481	5773	55	8865	491	.780 6722	37 880	10		
			482		54		491		37 848			
30	0	0.113 2032		0.993 5719		0.113 9356		8.776 8874		0	30	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

83° 30'

6° 30'

	"	Sine	Diff.	Cosine	Diff.	Tangent	Diff.	Cotangent	Diff.			Proportional Parts
30	0	0.113 2032		0.993 5719		0.113 9356		8.776 8874		0	30	
	10	2514	482	5664	55	9847	491	.773 1058	37 816	50		
	20	2996	482	5609	55	0.114 0338	491	.769 3274	37 784	40		
	30	3477	481	5554	55	0829	491	.765 5523	37 751	30		
	40	3959	482	5499	55	1321	492	.761 7804	37 719	20		
	50	4441	482	5444	55	1812	491	.758 0116	37 688	10		
			481		55		491		37 655			
31	0	0.113 4922		0.993 5389		0.114 2303		8.754 2461		0	29	
	10	5404	482	5334	55	2794	491	.750 4837	37 624	50		
	20	5886	482	5279	55	3285	491	.746 7246	37 591	40		
	30	6367	481	5224	55	3776	491	.742 9686	37 560	30		
	40	6849	482	5169	55	4267	491	.739 2158	37 528	20		
	50	7331	482	5113	56	4759	492	.735 4662	37 496	10		
			481		55		491		37 464			
32	0	0.113 7812		0.993 5058		0.114 5250		8.731 7198		0	28	
	10	8294	482	5003	55	5741	491	.727 9765	37 433	50		
	20	8776	482	4948	55	6232	491	.724 2364	37 401	40		
	30	9257	481	4893	55	6723	491	.720 4995	37 369	30		
	40	9739	482	4837	56	7214	491	.716 7657	37 338	20		
	50	0.114 0221	482	4782	55	7706	492	.713 0351	37 306	10		
			481		55		491		37 274			
33	0	0.114 0702		0.993 4727		0.114 8197		8.709 3077		0	27	
	10	1184	482	4672	55	8688	491	.705 5833	37 244	50		
	20	1666	482	4616	56	9179	491	.701 8622	37 211	40		
	30	2147	481	4561	56	9671	492	.698 1441	37 181	30		
	40	2629	482	4505	56	0.115 0162	491	.694 4292	37 149	20		
	50	3110	481	4450	55	0653	491	.690 7174	37 118	10		
			482		55		491		37 086			
34	0	0.114 3592		0.993 4395		0.115 1144		8.687 0088		0	26	
	10	4074	482	4339	56	1635	491	.683 3033	37 055	50		
	20	4555	481	4284	55	2127	492	.679 6009	37 024	40		
	30	5037	482	4228	56	2618	491	.675 9016	36 993	30		
	40	5519	482	4173	55	3109	491	.672 2054	36 962	20		
	50	6000	481	4117	56	3600	491	.668 5123	36 931	10		
			482		55		492		36 900			
35	0	0.114 6482		0.993 4062		0.115 4092		8.664 8223		0	25	
	10	6963	481	4006	56	4583	491	.661 1355	36 868	50		
	20	7445	482	3950	56	5074	491	.657 4517	36 838	40		
	30	7927	482	3895	55	5566	492	.653 7710	36 807	30		
	40	8408	481	3839	56	6057	491	.650 0934	36 776	20		
	50	8890	482	3783	56	6548	491	.646 4189	36 745	10		
			482		55		491		36 714			
36	0	0.114 9372		0.993 3728		0.115 7039		8.642 7475		0	24	
	10	9853	481	3672	56	7531	492	.639 0791	36 684	50		
	20	0.115 0335	482	3616	56	8022	491	.635 4138	36 653	40		
	30	0816	481	3560	55	8513	491	.631 7516	36 622	30		
	40	1298	482	3505	56	9005	492	.628 0924	36 592	20		
	50	1779	481	3449	56	9496	491	.624 4363	36 561	10		
			482		56		491		36 530			
37	0	0.115 2261		0.993 3393		0.115 9987		8.620 7833		0	23	
	10	2743	482	3337	56	0.116 0479	492	.617 1333	36 500	50		
	20	3224	481	3281	56	0970	491	.613 4864	36 469	40		
	30	3706	482	3225	56	1461	491	.609 8425	36 439	30		
	40	4187	481	3169	56	1953	492	.606 2016	36 409	20		
	50	4669	482	3113	56	2444	491	.602 5638	36 378	10		
			482		56		492		36 348			
38	0	0.115 5151		0.993 3057		0.116 2936		8.598 9290		0	22	
	10	5632	481	3001	56	3427	491	.595 2973	36 317	50		
	20	6114	482	2945	56	3918	491	.591 6685	36 288	40		
	30	6595	481	2889	56	4410	492	.588 0428	36 257	30		
	40	7077	482	2833	56	4901	491	.584 4201	36 227	20		
	50	7558	481	2777	56	5392	491	.580 8004	36 197	10		
			482		56		492		36 166			
39	0	0.115 8040		0.993 2721		0.116 5884		8.577 1838		0	21	
	10	8521	481	2665	56	6375	491	.573 5701	36 137	50		
	20	9003	482	2609	57	6867	492	.569 9595	36 106	40		
	30	9485	482	2552	57	7358	491	.566 3518	36 077	30		
	40	9966	481	2496	56	7850	492	.562 7471	36 047	20		
	50	0.116 0448	482	2440	56	8341	491	.559 1455	36 016	10		
			481		56		491		35 987			
40	0	0.116 0929		0.993 2384		0.116 8832		8.555 5468		0	20	
		Cosine	Diff.	Sine	Diff.	Cotangent	Diff.	Tangent	Diff.	"	'	Proportional Parts

83° 20'

6° 40'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
40	0	0.116 0929		0.993 2384		0 116 8832		8.555 5468		0	20	
	10	1411	482	2327	57	9324	492	551 9511	35 957	50		
	20	1892	481	2271	56	9815	491	.548 3584	35 927	40		
	30	2374	482	2215	56	0.117 0307	492	.544 7686	35 898	30		
	40	2855	481	2158	57	0798	491	.541 1819	35 867	20		
	50	3337	482	2102	56	1290	492	.537 5981	35 838	10		
			481		57		491		35 809			
41	0	0.116 3818		0.993 2045		0.117 1781		8.534 0172		0	19	
	10	4300	482	1989	56	2273	492	.530 4393	35 779	50		
	20	4781	481	1933	56	2764	491	.526 8644	35 749	40		
	30	5263	482	1876	57	3256	492	.523 2925	35 719	30		
	40	5744	482	1820	56	3747	491	.519 7235	35 690	20		
	50	6226	481	1763	57	4239	492	.516 1574	35 661	10		
							491		35 631			
42	0	0.116 6707		0.993 1706		0.117 4730		8 512 5943		0	18	
	10	7189	482	1650	56	5222	492	.509 0341	35 602	50		
	20	7670	481	1593	57	5713	491	.505 4769	35 572	40		
	30	8152	482	1537	56	6205	492	.501 9226	35 543	30		
	40	8633	481	1480	57	6696	491	.498 3712	35 514	20		
	50	9115	482	1423	56	7188	492	.494 8227	35 485	10		
			481		57		491		35 455			
43	0	0.116 9596		0.993 1367		0.117 7679		8 491 2772		0	17	
	10	0.117 0078	482	1310	57	8171	492	.487 7346	35 426	50		
	20	0559	481	1253	57	8662	491	.484 1949	35 397	40		
	30	1041	482	1196	57	9154	492	.480 6581	35 368	30		
	40	1522	481	1140	56	9645	491	.477 1242	35 339	20		
	50	2004	482	1083	57	0 118 0137	492	.473 5932	35 310	10		
			481		57		491		35 281			
44	0	0.117 2485		0.993 1026		0.118 0628		8.470 0651		0	16	
	10	2967	482	0969	57	1120	492	.466 5399	35 252	50		
	20	3448	481	0912	57	1612	492	.463 0176	35 223	40		
	30	3930	482	0855	57	2103	491	.459 4982	35 194	30		
	40	4411	481	0798	57	2595	492	.455 9817	35 165	20		
	50	4893	482	0742	56	3086	491	.452 4681	35 136	10		
			481		57		492		35 108			
45	0	0.117 5374		0.993 0685		0.118 3578		8.448 9573		0	15	
	10	5855	481	0628	57	4070	492	.445 4495	35 078	50		
	20	6337	482	0571	57	4561	491	.441 9444	35 051	40		
	30	6818	481	0514	57	5053	492	.438 4423	35 021	30		
	40	7300	482	0456	58	5544	491	.434 9430	34 993	20		
	50	7781	481	0399	57	6036	492	.431 4466	34 964	10		
			482		57		492		34 935			
46	0	0.117 8263		0.993 0342		0.118 6528		8.427 9531		0	14	
	10	8744	481	0285	57	7019	491	.424 4623	34 908	50		
	20	9226	482	0228	57	7511	492	.420 9745	34 878	40		
	30	9707	481	0171	57	8003	492	.417 4895	34 850	30		
	40	0.118 0188	482	0114	58	8494	491	.414 0073	34 822	20		
	50	0670	481	0056	57	8986	492	.410 5280	34 793	10		
							492		34 765			
47	0	0.118 1151		0.992 9999		0.118 9478		8.407 0515		0	13	
	10	1633	482	9942	57	9969	491	.403 5778	34 737	50		
	20	2114	481	9885	57	0.119 0461	492	.400 1070	34 708	40		
	30	2595	482	9827	58	0953	492	.396 6390	34 680	30		
	40	3077	481	9770	57	1444	491	.393 1738	34 652	20		
	50	3558	482	9712	58	1936	492	.389 7115	34 623	10		
							492		34 596			
48	0	0.118 4040		0 992 9655		0.119 2428		8.386 2519		0	12	
	10	4521	481	9598	57	2920	492	.382 7952	34 567	50		
	20	5002	482	9540	58	3411	491	.379 3413	34 539	40		
	30	5484	482	9483	57	3903	492	.375 8902	34 511	30		
	40	5965	481	9425	58	4395	492	.372 4418	34 484	20		
	50	6447	482	9368	57	4886	491	.368 9963	34 455	10		
			481		58		492		34 427			
49	0	0.118 6928		0.992 9310		0.119 5378		8.365 5536		0	11	
	10	7409	481	9253	57	5870	492	.362 1137	34 399	50		
	20	7891	482	9195	58	6362	492	.358 6765	34 372	40		
	30	8372	481	9138	57	6853	491	.355 2422	34 343	30		
	40	8854	482	9080	58	7345	492	.351 8106	34 316	20		
	50	9335	481	9022	58	7837	492	.348 3818	34 288	10		
					57		492		34 260			
50	0	0.118 9816		0.992 8965		0.119 8329		8.344 9558		0	10	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff.	"	'	Proportional Parts

83° 10'

6° 50'

'	"	Sine	Diff	Cosine	Diff.	Tangent	Diff	Cotangent	Diff.			Proportional Parts
50	0	0.118 9816		0.992 8965		0.119 8329		8.344 9568		0	10	
	10	0.119 0298	482		58	8820	491	.341 5325	34 233	50		
	20	0779	481		58	9312	492	.338 1120	34 205	40		
	30	1260	481		58	9804	492	.334 6943	34 177	30		
	40	1742	482		57	0.120 0296	492	.331 2793	34 150	20		
	50	2223	481		58	0788	492		34 122	10		
			481		58		491	327 8671	34 094			
51	0	0.119 2704		0.992 8618		0.120 1279		8.324 4577		0	9	
	10	3186	482		58	1771	492	.321 0510	34 067	50		
	20	3667	481		58	2263	492	.317 6470	34 040	40		
	30	4149	482		58	2755	492	.314 2458	34 012	30		
	40	4630	481		57	3247	492	.310 8473	33 985	20		
	50	5111	481		58	3739	492	.307 4516	33 957	10		
			482		58		491		33 930			
52	0	0.119 5593		0.992 8271		0.120 4230		8.304 0586		0	8	
	10	6074	481		58	4722	492	.300 6683	33 903	50		
	20	6555	482		58	5214	492	.297 2808	33 875	40		
	30	7037	481		58	5706	492	.293 8960	33 848	30		
	40	7518	481		58	6198	492	.290 5139	33 821	20		
	50	7999	481		58	6690	492	.287 1345	33 794	10		
			482		59		492		33 766			
53	0	0.119 8481		0.992 7922		0.120 7182		8.283 7579		0	7	
	10	8962	481		58	7673	491	.280 3839	33 740	50		
	20	9443	481		58	8165	492	.277 0127	33 712	40		
	30	9924	482		58	8657	492	.273 6441	33 686	30		
	40	0.120 0406	481		58	9149	492	.270 2783	33 658	20		
	50	0887	481		58	9641	492	.266 9152	33 631	10		
			481		59		492		33 605			
54	0	0.120 1368		0.992 7573		0.121 0133		8.263 5547		0	6	
	10	1850	482		58	0625	492	.260 1970	33 577	50		
	20	2331	481		58	1117	492	.256 8419	33 551	40		
	30	2812	482		58	1609	492	.253 4895	33 524	30		
	40	3294	481		59	2101	492	.250 1398	33 497	20		
	50	3775	481		58	2593	492	.246 7929	33 469	10		
			481		58		492		33 444			
55	0	0.120 4266		0.992 7224		0.121 3085		8.243 4485		0	5	
	10	4737	481		59	3577	492	.240 1068	33 417	50		
	20	5219	482		58	4068	491	.236 7678	33 390	40		
	30	5700	481		59	4560	492	.233 4315	33 363	30		
	40	6181	482		58	5052	492	.230 0978	33 337	20		
	50	6663	481		59	5544	492	.226 7668	33 310	10		
			481		58		492		33 284			
56	0	0.120 7144		0.992 6873		0.121 6036		8.223 4384		0	4	
	10	7625	481		59	6528	492	.220 1127	33 257	50		
	20	8106	481		58	7020	492	.216 7897	33 230	40		
	30	8588	482		58	7512	492	.213 4693	33 204	30		
	40	9069	481		58	8004	492	.210 1515	33 178	20		
	50	9550	481		59	8496	492	.206 8364	33 151	10		
			481		59		492		33 125			
57	0	0.121 0031		0.992 6521		0.121 8988		8.203 5239		0	3	
	10	0513	482		58	9480	492	.200 2140	33 099	50		
	20	0994	481		59	9972	492	.196 9068	33 072	40		
	30	1475	481		59	0.122 0464	492	.193 6022	33 046	30		
	40	1956	481		59	0956	492	.190 3002	33 020	20		
	50	2438	482		58	1449	493	.187 0009	32 993	10		
			481		59		492		32 968			
58	0	0.121 2919		0.992 6169		0.122 1941		8.183 7041		0	2	
	10	3400	481		59	2433	492	.180 4100	32 941	50		
	20	3881	481		59	2925	492	.177 1185	32 915	40		
	30	4363	482		59	3417	492	.173 8296	32 889	30		
	40	4844	481		59	3909	492	.170 5433	32 863	20		
	50	5325	481		58	4401	492	.167 2596	32 837	10		
			481		59		492		32 810			
59	0	0.121 5806		0.992 5816		0.122 4893		8.163 9786		0	1	
	10	6287	481		59	5385	492	.160 7001	32 785	50		
	20	6769	482		59	5877	492	.157 4242	32 759	40		
	30	7250	481		59	6369	492	.154 1509	32 733	30		
	40	7731	481		59	6861	492	.150 8801	32 708	20		
	50	8212	481		59	7353	492	.147 6120	32 681	10		
			481		59		493		32 656			
60	0	0.121 8693		0.992 5462		0.122 7846		8.144 3464		0	00	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

83° 00'

7° 00'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
0	0	0.121 8693		0.992 5462		0.122 7846		8.144 3464		0	60	
	10	9175	482	5402	60	8338	492	.141 0834	32 630	50		
	20	9656	481	5343	59	8830	492	.137 8230	32 604	40		
	30	0.122 0137	481	5284	59	9322	492	.134 5652	32 578	30		
	40	0618	481	5225	59	9814	492	.131 3099	32 553	20		
	50	1099	482	5166	59	0.123 0306	492	.128 0572	32 527	10		
1	0	0.122 1581		0.992 5107		0.123 0798		8.124 8071		0	59	
	10	2062	481	5047	60	1291	493	.121 5595	32 476	50		
	20	2543	481	4988	59	1783	492	.118 3145	32 450	40		
	30	3024	481	4929	59	2275	492	.115 0720	32 425	30		
	40	3505	481	4870	60	2767	492	.111 8321	32 399	20		
	50	3986	482	4810	59	3259	493	.108 5947	32 374	10		
2	0	0.122 4468		0.992 4751		0.123 3752		8.105 3599		0	58	
	10	4949	481	4691	60	4244	492	.102 1276	32 323	50		
	20	5430	481	4632	59	4736	492	.098 8979	32 297	40		
	30	5911	481	4573	60	5228	492	.095 6707	32 272	30		
	40	6392	481	4513	59	5720	492	.092 4460	32 247	20		
	50	6873	482	4454	60	6213	493	.089 2239	32 221	10		
3	0	0.122 7355		0.992 4394		0.123 6705		8.086 0042		0	57	
	10	7836	481	4335	59	7197	492	.082 7871	32 171	50		
	20	8317	481	4275	60	7689	492	.079 5726	32 145	40		
	30	8798	481	4216	59	8181	492	.076 3605	32 121	30		
	40	9279	481	4156	60	8674	493	.073 1509	32 096	20		
	50	9760	481	4096	59	9166	492	.069 9439	32 070	10		
4	0	0.123 0241		0.992 4037		0.123 9658		8.066 7394		0	56	
	10	0723	482	3977	60	0.124 0151	493	.063 5374	32 020	50		
	20	1204	481	3917	60	0643	492	.060 3378	31 996	40		
	30	1685	481	3858	59	1135	492	.057 1408	31 970	30		
	40	2166	481	3798	60	1627	492	.053 9463	31 945	20		
	50	2647	481	3738	59	2120	493	.050 7543	31 920	10		
5	0	0.123 3128		0.992 3679		0.124 2612		8.047 5647		0	55	
	10	3609	481	3619	60	3104	492	.044 3777	31 870	50		
	20	4090	481	3559	60	3597	493	.041 1931	31 846	40		
	30	4571	482	3499	60	4089	492	.038 0110	31 821	30		
	40	5053	481	3439	60	4581	492	.034 8314	31 796	20		
	50	5534	481	3379	60	5074	493	.031 6543	31 771	10		
6	0	0.123 6015		0.992 3319		0.124 5566		8.028 4796		0	54	
	10	6496	481	3259	60	6058	492	.025 3074	31 722	50		
	20	6977	481	3199	60	6551	493	.022 1377	31 697	40		
	30	7458	481	3140	59	7043	492	.018 9705	31 672	30		
	40	7939	481	3079	61	7535	492	.015 8057	31 648	20		
	50	8420	481	3019	60	8028	493	.012 6433	31 624	10		
7	0	0.123 8901		0.992 2959		0.124 8520		8.009 4835		0	53	
	10	9382	481	2899	60	9012	492	.006 3260	31 575	50		
	20	9863	481	2839	60	9505	493	.003 1711	31 549	40		
	30	0.124 0345	482	2779	60	9997	492	.000 0185	31 526	30		
	40	0826	481	2719	60	0.125 0489	492	7.996 8685	31 500	20		
	50	1307	481	2659	60	0982	493	.993 7208	31 477	10		
8	0	0.124 1788		0.992 2599		0.125 1474		7.990 5756		0	52	
	10	2269	481	2538	61	1967	493	.987 4329	31 427	50		
	20	2750	481	2478	60	2459	492	.984 2925	31 404	40		
	30	3231	481	2418	60	2952	493	.981 1546	31 379	30		
	40	3712	481	2358	60	3444	492	.978 0192	31 354	20		
	50	4193	481	2297	60	3936	493	.974 8861	31 331	10		
9	0	0.124 4674		0.992 2237		0.125 4429		7.971 7555		0	51	
	10	5155	481	2177	60	4921	492	.968 6273	31 282	50		
	20	5636	481	2116	61	5414	493	.965 5015	31 258	40		
	30	6117	481	2056	60	5906	492	.962 3781	31 234	30		
	40	6598	481	1995	61	6399	493	.959 2571	31 210	20		
	50	7079	481	1935	60	6891	492	.956 1386	31 185	10		
10	0	0.124 7560		0.992 1874		0.125 7384		7.953 0224		0	50	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

82° 50'

7° 10'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
10	0	0.124 7560		0.992 1874		0.125 7384		7.953 0224		0	50	
	10	8041	481	1814	60	7876	492	.949 9086	31 138	50		
	20	8522	481	1753	61	8369	493	.946 7973	31 113	40		
	30	9003	481	1693	60	8861	492	.943 6883	31 090	30		
	40	9484	481	1632	61	9354	493	.940 5818	31 065	20		
	50	9965	481	1572	60	9846	492	.937 4776	31 042	10		
			481		61		493		31 018			
11	0	0.125 0446		0.992 1511		0.126 0339		7.934 3758		0	49	
	10	0927	481	1451	60	0831	492	.931 2764	30 994	50		
	20	1408	481	1390	61	1324	493	.928 1794	30 970	40		
	30	1889	481	1329	61	1816	492	.925 0848	30 946	30		
	40	2370	481	1268	60	2309	493	.921 9925	30 923	20		
	50	2851	481	1208	61	2801	492	.918 9026	30 899	10		
			481		61		493		30 875			
12	0	0.125 3332		0.992 1147		0.126 3294		7.915 8151		0	48	
	10	3813	481	1086	61	3786	492	.912 7299	30 852	50		
	20	4294	481	1025	61	4279	493	.909 6472	30 827	40		
	30	4775	481	0965	60	4771	492	.906 5667	30 805	30		
	40	5256	481	0904	61	5264	493	.903 4887	30 780	20		
	50	5737	481	0843	61	5757	492	.900 4130	30 757	10		
			481		61		492		30 734			
13	0	0.125 6218		0.992 0782		0.126 6249		7.897 3396		0	47	
	10	0699	481	0721	61	6742	493	.894 2687	30 709	50		
	20	7180	481	0660	61	7234	492	.891 2000	30 687	40		
	30	7661	481	0599	61	7727	493	.888 1337	30 663	30		
	40	8142	481	0538	61	8220	492	.885 0698	30 639	20		
	50	8623	481	0477	61	8712	492	.882 0082	30 616	10		
			481		61		493		30 593			
14	0	0.125 9104		0.992 0416		0.126 9205		7.878 9489		0	46	
	10	9585	481	0355	61	9697	492	.875 8920	30 569	50		
	20	0.126 0066	481	0294	61	0.127 0190	493	.872 8374	30 546	40		
	30	0547	481	0233	61	0683	492	.869 7851	30 523	30		
	40	1028	481	0172	61	1175	493	.866 7352	30 499	20		
	50	1509	481	0111	62	1668	492	.863 6876	30 476	10		
			481		62		493		30 453			
15	0	0.126 1990		0.992 0049		0.127 2161		7.860 6423		0	45	
	10	2471	481	0.991 9988	61	2653	492	.857 5903	30 430	50		
	20	2952	481	9927	61	3146	493	.854 5586	30 407	40		
	30	3432	480	9866	61	3639	492	.851 5203	30 383	30		
	40	3913	481	9805	61	4131	493	.848 4843	30 360	20		
	50	4394	481	9743	62	4624	492	.845 4506	30 337	10		
			481		61		493		30 315			
16	0	0.126 4875		0.991 9682		0.127 5117		7.842 4191		0	44	
	10	5356	481	9621	61	5609	492	.839 3900	30 291	50		
	20	5837	481	9559	62	6102	493	.836 3632	30 268	40		
	30	6318	481	9498	61	6595	492	.833 3387	30 245	30		
	40	6799	481	9437	61	7088	493	.830 3165	30 222	20		
	50	7280	481	9375	62	7580	492	.827 2966	30 199	10		
			481		61		493		30 176			
17	0	0.126 7761		0.991 9314		0.127 8073		7.824 2790		0	43	
	10	8242	481	9252	61	8566	492	.821 2636	30 154	50		
	20	8723	481	9191	62	9059	493	.818 2506	30 130	40		
	30	9203	480	9129	62	9551	492	.815 2398	30 108	30		
	40	9684	481	9068	61	0.128 0044	493	.812 2313	30 085	20		
	50	0.127 0165	481	9006	62	0537	492	.809 2251	30 062	10		
			481		62		493		30 039			
18	0	0.127 0646		0.991 8944		0.128 1030		7.806 2212		0	42	
	10	1127	481	8883	61	1522	492	.803 2196	30 016	50		
	20	1608	481	8821	62	2015	493	.800 2202	29 994	40		
	30	2089	481	8760	61	2508	492	.797 2230	29 972	30		
	40	2570	481	8698	62	3001	493	.794 2282	29 948	20		
	50	3050	480	8636	62	3493	492	.791 2356	29 926	10		
			481		62		493		29 903			
19	0	0.127 3531		0.991 8574		0.128 3986		7.788 2453		0	41	
	10	4012	481	8513	61	4479	492	.785 2572	29 881	50		
	20	4493	481	8451	62	4972	493	.782 2714	29 858	40		
	30	4974	481	8389	62	5465	492	.779 2878	29 836	30		
	40	5455	481	8327	62	5958	493	.776 3065	29 813	20		
	50	5936	480	8265	61	6450	492	.773 3274	29 791	10		
			480		61		493		29 768			
20	0	0.127 6416		0.991 8204		0.128 6943		7.770 3506		0	40	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff.	"	'	Proportional Parts

82° 40'

7° 20'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
20	0	0.127 6418		0.991 8204		0.128 6943		7.770 3506		0	40	
	10	6897	481	8142	62	7436	493	.767 3760	29 746	50		
	20	7378	481	8080	62	7929	493	.764 4036	29 724	40		
	30	7859	481	8018	62	8422	493	.761 4335	29 701	30		
	40	8340	481	7956	62	8915	493	.758 4657	29 678	20		
	50	8821	481	7894	62	9408	493	.755 5000	29 657	10		
			481		62		492		29 634			
21	0	0.127 9302		0.991 7832		0.128 9900		7.762 5366		0	39	
	10	9782	480	7770	62	0.129 0393	493	.749 5754	29 612	50		
	20	0.128 0263	481	7708	62	0886	493	.746 6165	29 589	40		
	30	0744	481	7646	62	1379	493	.743 6597	29 568	30		
	40	1225	481	7584	62	1872	493	.740 7052	29 545	20		
	50	1706	480	7521	62	2365	493	.737 7529	29 523	10		
			480		62		493		29 501			
22	0	0.128 2186		0.991 7459		0.129 2858		7.734 8028		0	38	
	10	2667	481	7397	62	3351	493	.731 8549	29 479	50		
	20	3148	481	7335	62	3844	493	.728 9092	29 457	40		
	30	3629	481	7273	62	4337	493	.725 9658	29 434	30		
	40	4110	480	7210	63	4830	493	.723 0245	29 413	20		
	50	4590	480	7148	62	5322	492	.720 0855	29 390	10		
			481		62		493		29 369			
23	0	0.128 5071		0.991 7086		0.129 5816		7.717 1486		0	37	
	10	5552	481	7024	62	6308	493	.714 2139	29 347	50		
	20	6033	481	6961	63	6801	493	.711 2815	29 324	40		
	30	6514	480	6899	62	7294	493	.708 3512	29 303	30		
	40	6994	480	6836	63	7787	493	.705 4231	29 281	20		
	50	7475	481	6774	62	8280	493	.702 4972	29 259	10		
			481		62		493		29 237			
24	0	0.128 7966		0.991 6712		0.129 8773		7.699 5735		0	36	
	10	8437	481	6649	63	9266	493	.696 6520	29 215	50		
	20	8918	480	6587	62	9759	493	.693 7326	29 194	40		
	30	9398	481	6524	63	0.130 0252	493	.690 8154	29 172	30		
	40	9879	481	6462	62	0745	493	.687 9004	29 150	20		
	50	0.129 0360	481	6399	63	1238	493	.684 9876	29 128	10		
			481		62		493		29 107			
25	0	0.129 0841		0.991 6337		0.130 1731		7.682 0769		0	35	
	10	1321	480	6274	63	2224	493	.679 1685	29 084	50		
	20	1802	481	6211	63	2717	493	.676 2621	29 064	40		
	30	2283	481	6149	62	3210	493	.673 3580	29 041	30		
	40	2764	480	6086	63	3703	493	.670 4560	29 020	20		
	50	3244	480	6023	63	4197	494	.667 5561	28 999	10		
			481		62		493		28 977			
26	0	0.129 3725		0.991 5961		0.130 4690		7.664 6584		0	34	
	10	4206	481	5898	63	5183	493	.661 7629	28 955	50		
	20	4687	481	5835	63	5676	493	.658 8695	28 934	40		
	30	5167	480	5772	63	6169	493	.655 9782	28 913	30		
	40	5648	481	5710	62	6662	493	.653 0892	28 890	20		
	50	6129	481	5647	63	7155	493	.650 2022	28 870	10		
			480		63		493		28 848			
27	0	0.129 6609		0.991 5584		0.130 7648		7.647 3174		0	33	
	10	7090	481	5521	63	8141	493	.644 4347	28 827	50		
	20	7571	481	5458	63	8634	493	.641 5542	28 805	40		
	30	8052	481	5395	63	9127	493	.638 6758	28 784	30		
	40	8532	480	5332	63	9621	494	.635 7995	28 763	20		
	50	9013	481	5269	63	0.131 0114	493	.632 9254	28 741	10		
			481		63		493		28 721			
28	0	0.129 9494		0.991 5206		0.131 0607		7.630 0533		0	32	
	10	9974	480	5143	63	1100	493	.627 1834	28 699	50		
	20	0.130 0455	481	5080	63	1593	493	.624 3157	28 677	40		
	30	0936	481	5017	63	2086	493	.621 4500	28 657	30		
	40	1416	480	4954	63	2579	493	.618 5865	28 635	20		
	50	1897	480	4891	63	3073	494	.615 7251	28 614	10		
			481		63		493		28 594			
29	0	0.130 2378		0.991 4828		0.131 3566		7.612 8657		0	31	
	10	2859	481	4765	63	4059	493	.610 0085	28 572	50		
	20	3339	480	4702	63	4552	493	.607 1535	28 550	40		
	30	3820	481	4638	64	5045	493	.604 3005	28 530	30		
	40	4301	481	4575	63	5539	494	.601 4496	28 509	20		
	50	4781	480	4512	63	6032	493	.598 6008	28 488	10		
			481		63		493		28 467			
30	0	0.130 5262		0.991 4449		0.131 6525		7.595 7541		0	30	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff.	"	'	Proportional Parts

82° 30'

7° 30'

	'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
30	0	0.130 5262			0.991 4449		0.131 6525		7.595 7541		0	30	Sine
	10	5743	481		4385	64	7018	493	.592 9095	28 446	50		480 481
	20	6223	480		4322	63	7511	493	.590 0670	28 425	40		1 48 0 48 1
	30	6704	481		4259	63	8005	494	.587 2266	28 404	30		2 96 0 96 2
	40	7185	480		4195	64	8498	493	.584 3883	28 383	20		3 144 0 144 3
	50	7665	481		4132	63	8991	493	.581 5521	28 362	10		4 192 0 192 4
			481			63		493		28 342			5 240 0 240 5
31	0	0.130 8146			0.991 4069		0.131 9484		7.578 7179		0	29	6 288 0 288 6
	10	8627	481		4005	64	9978	494	.575 8859	28 320	50		7 336 0 336 7
	20	9107	480		3942	63		493	.573 0559	28 300	40		8 384 0 384 8
	30	9588	481		3878	63	0964	493	.570 2280	28 279	30		9 432 0 432 9
	40	0.131 0068	480		3815	63	1457	493	.567 4021	28 259	20		Cosine
	50	0549	481		3751	64	1951	494	.564 5784	28 237	10		63 64 65
			481			63		493		28 217			1 6 3 6 4 6 5
32	0	0.131 1030			0.991 3688		0.132 2444		7.561 7567		0	28	2 12 6 12 8 13 0
	10	1510	480		3624	64	2937	493	.558 9371	28 196	50		3 18 9 19 2 19 5
	20	1991	481		3560	64	3431	494	.556 1195	28 176	40		4 25 2 25 6 26 0
	30	2472	480		3497	63	3924	493	.553 3040	28 155	30		5 31 5 32 0 32 5
	40	2952	480		3433	64	4417	493	.550 4906	28 134	20		6 37 8 38 4 39 0
	50	3433	480		3369	63	4911	494	.547 6792	28 114	10		7 44 1 44 8 45 5
			480			63		493		28 093			8 50 4 51 2 52 0
													9 56 7 57 6 58 5
33	0	0.131 3913			0.991 3306		0.132 5404		7.544 8699		0	27	Tangent
	10	4394	481		3242	64	5897	493	542 0627	28 072	50		493 494
	20	4875	481		3178	64	6391	494	539 2575	28 052	40		1 49 3 49 4
	30	5355	480		3115	63	6884	493	.536 4543	28 032	30		2 98 6 98 8
	40	5836	481		3051	64	7377	493	.533 6532	28 011	20		3 147 9 148 2
	50	6316	480		2987	64	7871	494	.530 8541	27 991	10		4 197 2 197 6
			481			64		493		27 970			5 246 5 247 0
34	0	0.131 6797			0.991 2923		0.132 8364		7.528 0571		0	26	6 295 8 296 4
	10	7278	481		2859	64	8857	493	.525 2621	27 950	50		7 345 1 345 8
	20	7758	480		2795	64	9351	494	.522 4692	27 929	40		8 394 4 395 2
	30	8239	481		2732	63	9844	493	.519 6783	27 909	30		9 443 7 444 6
	40	8719	480		2668	64	0.133 0338	494	.516 8894	27 889	20		Cotangent
	50	9200	481		2604	64	0831	493	.514 1026	27 868	10		28 400 28 200
			481			64		493		27 848			1 2 840 0 2 820 0
35	0	0.131 9681			0.991 2540		0.133 1324		7.511 3178		0	25	2 5 680 0 5 640 0
	10	0.132 0161	480		2476	64	1818	494	.508 5350	27 828	50		3 8 520 0 8 440 0
	20	0642	481		2412	64	2311	493	.505 7542	27 808	40		4 11 360 0 11 280 0
	30	1122	480		2348	64	2805	494	.502 9755	27 787	30		5 14 200 0 14 100 0
	40	1603	480		2284	64	3298	493	.500 1988	27 767	20		6 17 040 0 16 020 0
	50	2083	481		2220	64	3791	493	.497 4241	27 747	10		7 19 880 0 19 740 0
			481			65		494		27 727			8 22 720 0 22 560 0
36	0	0.132 2564			0.991 2155		0.133 4285		7.494 6514		0	24	9 25 560 0 25 380 0
	10	3044	480		2091	64	4778	493	.491 8807	27 707	50		28 000 27 800
	20	3525	481		2027	64	5272	494	.489 1121	27 686	40		1 2 800 0 2 780 0
	30	4006	480		1963	64	5765	493	.486 3454	27 667	30		2 5 600 0 5 560 0
	40	4486	481		1899	64	6259	494	.483 5808	27 646	20		3 8 400 0 8 340 0
	50	4967	480		1835	64	6752	493	.480 8182	27 626	10		4 11 200 0 11 120 0
			480			65		494		27 606			5 14 000 0 13 900 0
37	0	0.132 5447			0.991 1770		0.133 7246		7.478 0576		0	23	6 16 800 0 16 680 0
	10	5928	481		1706	64	7739	493	.475 2989	27 587	50		7 19 600 0 19 460 0
	20	6408	480		1642	64	8233	494	.472 5423	27 566	40		8 22 400 0 22 240 0
	30	6889	481		1577	65	8726	493	.469 7877	27 546	30		9 25 200 0 25 020 0
	40	7369	480		1513	64	9220	494	.467 0350	27 527	20		27 600 27 400
	50	7850	481		1449	64	9713	493	.464 2844	27 506	10		1 2 760 0 2 740 0
			480			65		494		27 487			2 5 520 0 5 480 0
38	0	0.132 8330			0.991 1384		0.134 0207		7.461 5357		0	22	3 8 280 0 8 220 0
	10	8811	481		1320	64	0700	493	.458 7891	27 466	50		4 11 040 0 10 960 0
	20	9291	480		1255	65	1194	494	.456 0444	27 447	40		5 13 800 0 13 700 0
	30	9772	481		1191	64	1687	493	.453 3017	27 427	30		6 16 560 0 16 440 0
	40	0.133 0252	480		1127	64	2181	494	.450 5610	27 407	20		7 19 320 0 19 180 0
	50	0733	481		1062	65	2674	493	.447 8223	27 387	10		8 22 080 0 21 920 0
			480			65		494		27 368			9 24 840 0 24 660 0
39	0	0.133 1213			0.991 0997		0.134 3168		7.445 0855		0	21	27 200
	10	1694	481		0933	64	3661	493	.442 3507	27 348	50		1 2 720 0
	20	2174	480		0868	65	4155	494	.439 6179	27 328	40		2 5 440 0
	30	2655	481		0804	64	4649	493	.436 8871	27 308	30		3 8 160 0
	40	3135	480		0739	65	5142	494	.434 1582	27 289	20		4 10 880 0
	50	3616	481		0674	65	5636	493	.431 4313	27 269	10		5 13 600 0
			480			64		493		27 249			6 16 320 0
40	0	0.133 4096			0.991 0610		0.134 6129		7.428 7064		0	20	7 19 040 0
													8 21 760 0
													9 24 480 0
			Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff.	"	'	Proportional Parts

82° 20'

7° 40'

"	'	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff	"	'	Proportional Parts
40	0	0.133 4096	481	0.991 0610	65	0.134 6129	494	7.428 7084	27 230	0	20	Sine
	10	4577	480	0545	65	6623	494	.425 9834	27 210	50		480 481
	20	5057	481	0480	64	7117	493	.423 2624	27 191	40		1 48 0 48 1
	30	5538	480	0416	65	7610	494	.420 5433	27 171	30		2 96 0 96 2
	40	6018	481	0351	65	8104	493	.417 8262	27 152	20		3 144 0 144 3
	50	6499	480	0286	65	8597	494	.415 1110	27 132	10		4 192 0 192 4
41	0	0.133 6979	481	0.991 0221	65	0.134 9091	494	7.412 3978	27 112	0	19	5 240 0 240 5
	10	7460	480	0156	64	9585	493	.409 6866	27 093	50		6 288 0 288 6
	20	7940	481	0092	65	0.135 0078	494	.406 9773	27 074	40		7 336 0 336 7
	30	8421	480	0027	65	0572	494	.404 2699	27 054	30		8 384 0 384 8
	40	8901	480	0.990 9962	65	1066	493	.401 5645	27 035	20		9 432 0 432 9
	50	9381	481	9897	65	1559	494	.398 8610	27 015	10		Cosine
42	0	0.133 9862	480	0.990 9832	65	0.135 2053	494	7.396 1595	26 996	0	18	64 65 66
	10	0.134 0342	481	9767	65	2547	493	.393 4599	26 976	50		1 6 4 6 5 6 6
	20	0823	480	9702	65	3040	493	.390 7623	26 956	40		2 12 8 13 0 13 2
	30	1303	481	9637	65	3534	494	.388 0665	26 938	30		3 19 2 19 5 19 8
	40	1784	480	9572	65	4028	494	.385 3727	26 919	20		4 25 6 26 0 26 4
	50	2204	480	9507	65	4522	493	.382 6808	26 899	10		5 32 0 32 5 33 0
43	0	0.134 2744	481	0.990 9442	65	0.135 5015	494	7.379 9909	26 880	0	17	6 38 4 39 0 39 6
	10	3225	480	9377	65	5509	494	.377 3029	26 861	50		7 44 8 45 5 46 2
	20	3705	481	9312	65	6003	494	.374 6168	26 842	40		8 51 2 52 0 52 8
	30	4186	480	9246	66	6496	493	.371 9326	26 823	30		9 57 6 58 5 59 4
	40	4666	481	9181	65	6990	494	.369 2503	26 803	20		Tangent
	50	5147	480	9116	65	7484	494	.366 5700	26 784	10		493 494
44	0	0.134 5627	480	0.990 9051	65	0.135 7978	493	7.363 8916	26 766	0	16	1 49 3 49 4
	10	6107	481	8986	66	8471	494	.361 2150	26 746	50		2 98 6 98 8
	20	6588	480	8920	65	8965	494	.358 5404	26 726	40		3 147 9 148 2
	30	7068	481	8855	65	9459	494	.355 8677	26 707	30		4 197 2 197 6
	40	7549	480	8790	66	9953	493	.353 1969	26 689	20		5 246 5 247 0
	50	8029	480	8724	65	0.136 0446	494	.350 5280	26 670	10		6 295 8 296 4
45	0	0.134 8509	481	0.990 8659	65	0.136 0940	494	7.347 8610	26 650	0	15	7 345 1 345 8
	10	8990	480	8594	66	1434	494	.345 1960	26 632	50		8 394 4 395 2
	20	9470	481	8528	65	1928	494	.342 5328	26 613	40		9 443 7 444 6
	30	9950	480	8463	65	2422	493	.339 8715	26 595	30		Cotangent
	40	0.135 0431	481	8397	66	2915	494	.337 2120	26 575	20		27 200 27 000
	50	0911	481	8332	66	3409	494	.334 5545	26 556	10		1 2 720 0 2 700 0
46	0	0.135 1392	480	0.990 8266	65	0.136 3903	493	7.331 8989	26 537	0	14	2 5 440 0 5 400 0
	10	1872	481	8201	66	4397	494	.329 2452	26 519	50		3 8 160 0 8 100 0
	20	2352	480	8135	65	4891	494	.326 5933	26 500	40		4 10 880 0 10 800 0
	30	2833	481	8070	65	5385	494	.323 9433	26 480	30		5 13 600 0 13 500 0
	40	3313	480	8004	66	5879	493	.321 2953	26 462	20		6 16 320 0 16 200 0
	50	3793	481	7938	65	6372	494	.318 6491	26 444	10		7 19 040 0 19 000 0
47	0	0.135 4274	480	0.990 7873	66	0.136 6866	494	7.316 0047	26 424	0	13	8 21 760 0 21 600 0
	10	4754	481	7807	66	7360	494	.313 3623	26 406	50		9 24 480 0 24 300 0
	20	5234	480	7741	65	7854	494	.310 7217	26 387	40		26 800 26 600
	30	5715	481	7676	65	8348	494	.308 0830	26 369	30		1 2 680 0 2 660 0
	40	6195	480	7610	66	8842	494	.305 4461	26 350	20		2 5 360 0 5 320 0
	50	6675	481	7544	66	9336	494	.302 8111	26 331	10		3 8 040 0 7 980 0
48	0	0.135 7166	480	0.990 7478	65	0.136 9830	494	7.300 1780	26 312	0	12	4 10 720 0 10 640 0
	10	7636	481	7413	66	0.137 0324	493	.297 5468	26 294	50		5 13 400 0 13 300 0
	20	8116	480	7347	66	0817	494	.294 9174	26 275	40		6 16 080 0 16 000 0
	30	8597	481	7281	66	1311	494	.292 2899	26 257	30		7 18 760 0 18 620 0
	40	9077	480	7215	66	1805	494	.289 6642	26 238	20		8 21 440 0 21 280 0
	50	9557	481	7149	66	2299	494	.287 0404	26 220	10		9 24 120 0 23 940 0
49	0	0.136 0038	480	0.990 7083	66	0.137 2793	494	7.284 4184	26 201	0	11	26 400 26 200
	10	0518	481	7017	66	3287	494	.281 7983	26 183	50		1 2 640 0 2 620 0
	20	0998	480	6951	66	3781	494	.279 1800	26 164	40		2 5 280 0 5 240 0
	30	1479	481	6885	66	4275	494	.276 5636	26 145	30		3 7 920 0 7 860 0
	40	1959	480	6819	66	4769	494	.273 9491	26 128	20		4 10 560 0 10 480 0
	50	2439	481	6753	66	5263	494	.271 3363	26 108	10		5 13 200 0 13 100 0
50	0	0.136 2919	480	0.990 6687	66	0.137 5757	494	7.268 7255	26 090	0	10	6 15 840 0 15 720 0
												7 18 480 0 18 340 0
												8 21 120 0 20 960 0
												9 23 760 0 23 580 0
												26 100
												1 2 610 0
												2 5 220 0
												3 7 830 0
												4 10 440 0
												5 13 050 0
												6 15 060 0
												7 18 270 0
												8 20 480 0
												9 23 490 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	"	Proportional Parts

82° 10'

7° 50'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
50	0	0.136 2919		0.990 6687		0.137 5757		7.268 7255		0	10	
	10	3400	481	6621	66	6251	494	.266 1164	26 091	50		Sine
	20	3880	480	6555	66	6745	494	.263 5092	26 072	40		481
	30	4360	480	6489	66	7239	494	.260 9038	26 054	30		1 48 0 48 1
	40	4841	481	6423	66	7733	494	.258 3003	26 035	20		2 96 0 06 2
	50	5321	480	6356	67	8227	494	.255 6986	26 017	10		3 144 0 144 3
					66				25 999			4 192 0 192 4
51	0	0.136 6801		0.990 6290		0.137 8721		7.253 0987		0	9	
	10	6281	480	6224	66	9215	494	.250 5007	25 980	50		5 240 0 240 5
	20	6762	481	6158	66	9709	494	.247 9044	25 963	40		6 288 0 288 6
	30	7242	480	6092	66	0 138 0203	494	.245 3100	25 944	30		7 336 0 336 7
	40	7722	480	6025	67	0697	494	.242 7175	25 925	20		8 384 0 384 8
	50	8202	481	5959	66	1191	494	.240 1267	25 908	10		9 432 0 432 9
					66				25 889			
52	0	0.136 8683		0.990 5893		0.138 1685		7.237 5378		0	8	
	10	9163	480	5826	67	2179	494	.234 9506	25 872	50		Cosine
	20	9643	480	5760	66	2674	495	.232 3653	25 853	40		66 67 68
	30	0.137 0123	480	5693	67	3168	494	.229 7818	25 835	30		1 6 6 6 7 6 8
	40	0604	481	5627	66	3662	494	.227 2002	25 816	20		2 13 2 13 4 13 6
	50	1084	480	5561	66	4156	494	.224 6203	25 799	10		3 19 8 20 1 20 4
					67				25 781			4 26 4 26 8 27 2
53	0	0.137 1564		0.990 5494		0.138 4650		7.222 0422		0	7	
	10	2044	480	5428	66	5144	494	.219 4659	25 763	50		5 33 0 33 5 34 0
	20	2525	481	5361	67	5638	494	.216 8915	25 744	40		6 39 6 40 2 40 8
	30	3005	480	5294	67	6132	494	.214 3188	25 727	30		7 46 2 46 9 47 6
	40	3485	480	5228	66	6626	494	.211 7480	25 708	20		8 52 8 53 6 54 4
	50	3965	480	5161	67	7121	495	.209 1789	25 691	10		9 59 4 60 3 61 2
					66				25 673			
54	0	0.137 4445		0.990 5095		0.138 7615		7.206 6116		0	6	
	10	4926	481	5028	67	8109	494	.204 0461	25 655	50		Tangent
	20	5406	480	4961	67	8603	494	.201 4825	25 636	40		494 495
	30	5886	480	4895	66	9097	494	.198 9206	25 619	30		1 49 4 49 5
	40	6366	480	4828	67	9591	494	.196 3605	25 601	20		2 98 8 99 0
	50	6846	481	4761	67	0 139 0085	494	.193 8021	25 584	10		3 148 2 148 5
					67				25 565			4 197 6 198 0
55	0	0.137 7327		0.990 4694		0.139 0580		7.191 2456		0	5	
	10	7807	480	4628	66	1074	494	.188 6908	25 548	50		5 247 0 247 5
	20	8287	480	4561	67	1568	494	.186 1379	25 529	40		6 296 4 297 0
	30	8767	480	4494	67	2062	494	.183 5867	25 512	30		7 345 8 346 5
	40	9247	481	4427	67	2556	495	.181 0372	25 495	20		8 395 2 396 0
	50	9728	480	4360	67	3051	495	.178 4896	25 476	10		9 444 6 445 5
					67				25 459			
56	0	0.138 0208		0.990 4293		0.139 3545		7.175 9437		0	4	
	10	0688	480	4226	67	4039	494	.173 3996	25 441	50		Cotangent
	20	1168	480	4159	67	4533	494	.170 8573	25 423	40		25 000 25 800
	30	1648	480	4092	67	5028	495	.168 3167	25 406	30		1 2 600 0 2 580 0
	40	2128	480	4025	67	5522	494	.165 7779	25 388	20		2 5 200 0 5 160 0
	50	2609	481	3958	67	6016	494	.163 2409	25 370	10		3 7 800 0 7 740 0
					67				25 353			4 10 400 0 10 320 0
57	0	0.138 3089		0.990 3891		0.139 6510		7.160 7056		0	3	
	10	3569	480	3824	67	7005	495	.158 1721	25 335	50		5 13 000 0 12 900 0
	20	4049	480	3757	67	7499	494	.155 6403	25 318	40		6 15 600 0 15 240 0
	30	4529	480	3690	67	7993	494	.153 1103	25 300	30		7 17 920 0 17 780 0
	40	5009	480	3623	67	8488	495	.150 5821	25 282	20		8 20 800 0 20 640 0
	50	5489	481	3556	67	8982	494	.148 0556	25 265	10		9 23 400 0 23 220 0
					67				25 248			
58	0	0.138 5970		0.990 3489		0.139 9476		7.145 5308		0	2	
	10	6450	480	3421	68	9970	494	.143 0078	25 230	50		25 600 25 400
	20	6930	480	3354	67	0 140 0465	495	.140 4866	25 212	40		1 2 560 0 2 540 0
	30	7410	480	3287	67	0959	494	.137 9671	25 195	30		2 5 120 0 5 080 0
	40	7890	480	3220	67	1453	494	.135 4493	25 178	20		3 7 980 0 7 620 0
	50	8370	480	3152	68	1948	495	.132 9333	25 160	10		4 10 240 0 10 160 0
					67				25 143			5 12 800 0 12 700 0
59	0	0.138 8850		0.990 3085		0.140 2442		7.130 4190		0	1	
	10	9330	480	3018	67	2936	494	.127 9064	25 126	50		6 15 360 0 15 240 0
	20	9811	481	2950	68	3431	495	.125 3956	25 108	40		7 17 920 0 17 780 0
	30	0 139 0291	480	2883	67	3925	494	.122 8866	25 090	30		8 20 800 0 20 640 0
	40	0771	480	2816	67	4420	495	.120 3792	25 074	20		9 23 040 0 22 860 0
	50	1251	480	2748	68	4914	494	.117 8736	25 056	10		25 200 25 000
					67				25 039			1 2 520 0 2 500 0
60	0	0.139 1731		0.990 2681		0.140 5408		7.115 3697		0	0	
												2 5 040 0 5 000 0
												3 7 590 0 7 500 0
												4 10 080 0 10 000 0
												5 12 600 0 12 500 0
												6 15 120 0 15 000 0
												7 17 640 0 17 500 0
												8 20 160 0 20 000 0
												9 22 680 0 22 500 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

82° 00'

8° 00'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
0	0	0.139 1731		0.990 2681		0.140 5408		7 115 3697		0	60	
	10	2211	480	2613	68	5903	495	.112 8676	25 021	50		
	20	2691	480	2546	67	6397	494	.110 3671	25 005	40		
	30	3171	480	2478	68	6892	495	.107 8684	24 987	30		
	40	3651	480	2411	67	7386	494	.105 3714	24 970	20		
	50	4131	480	2343	68	7880	494	.102 8762	24 952	10		
			481		68		495		24 936			
1	0	0.139 4612		0.990 2275		0.140 8375		7 100 3826		0	59	
	10	5092	480	2208	67	8869	494	.097 8908	24 918	50		
	20	5572	480	2140	68	9364	495	.095 4007	24 901	40		
	30	6052	480	2072	68	9858	494	.092 9123	24 884	30		
	40	6532	480	2005	67	0 141 0353	495	.090 4256	24 867	20		
	50	7012	480	1937	68	0847	494	.087 9406	24 850	10		
			480		68		495		24 833			
2	0	0.139 7492		0.990 1869		0.141 1342		7 085 4573		0	58	
	10	7972	480	1802	67	1836	494	.082 9757	24 816	50		
	20	8452	480	1734	68	2330	494	.080 4959	24 798	40		
	30	8932	480	1666	68	2825	495	.078 0177	24 782	30		
	40	9412	480	1598	68	3319	494	.075 5412	24 765	20		
	50	9892	480	1530	68	3814	495	.073 0665	24 747	10		
			480		68		494		24 731			
3	0	0 140 0372		0 990 1462		0 141 4308		7 070 5934		0	57	
	10	0852	480	1394	68	4803	495	.068 1220	24 714	50		
	20	1332	480	1327	67	5297	494	.065 6523	24 697	40		
	30	1812	480	1259	68	5792	495	.063 1843	24 680	30		
	40	2292	480	1191	68	6287	495	.060 7180	24 663	20		
	50	2772	480	1123	68	6781	494	.058 2534	24 646	10		
			480		68		495		24 629			
4	0	0.140 3252		0.990 1055		0.141 7276		7 055 7905		0	56	
	10	3732	480	0987	68	7770	494	.053 3292	24 613	50		
	20	4212	480	0919	68	8265	495	.050 8697	24 595	40		
	30	4692	480	0850	69	8759	494	.048 4118	24 579	30		
	40	5172	480	0782	68	9254	495	.045 9556	24 562	20		
	50	5652	480	0714	68	9748	494	.043 5011	24 545	10		
			480		68		495		24 529			
5	0	0 140 6132		0.990 0646		0.142 0243		7 041 0482		0	55	
	10	6612	480	0578	68	0738	495	.038 5971	24 511	50		
	20	7092	480	0510	68	1232	494	.036 1475	24 496	40		
	30	7572	480	0441	69	1727	495	.033 6997	24 478	30		
	40	8052	480	0373	68	2222	495	.031 2536	24 461	20		
	50	8532	480	0305	68	2716	494	.028 8091	24 445	10		
			480		68		495		24 429			
6	0	0.140 9012		0.990 0237		0.142 3211		7 026 3662		0	54	
	10	9492	480	0168	69	3705	494	.023 9251	24 411	50		
	20	9972	480	0100	68	4200	495	.021 4856	24 395	40		
	30	0.141 0452	480	0032	68	4695	495	.019 0477	24 379	30		
	40	0932	480	0 989 9963	69	5189	494	.016 6115	24 362	20		
	50	1412	480	9895	68	5684	495	.014 1770	24 345	10		
			480		69		495		24 329			
7	0	0.141 1892		0.989 9826		0.142 6179		7.011 7441		0	53	
	10	2372	480	9758	68	0673	494	.009 3129	24 312	50		
	20	2852	480	9689	69	1168	495	.006 8833	24 296	40		
	30	3332	480	9621	68	1663	495	.004 4554	24 279	30		
	40	3812	480	9552	69	2157	494	.002 0292	24 262	20		
	50	4292	480	9484	68	2652	495	.000 6045	24 247	10		
			480		69		495		24 229			
8	0	0 141 4772		0.989 9415		0.142 9147		6.997 1816		0	52	
	10	5252	480	9347	68	9642	495	.994 7602	24 214	50		
	20	5732	480	9278	69	0.143 0136	494	.992 3405	24 197	40		
	30	6212	480	9209	69	0631	495	.989 9225	24 180	30		
	40	6692	479	9141	68	1126	495	.987 5061	24 164	20		
	50	7171	480	9072	69	1621	494	.985 0913	24 148	10		
			480		69		494		24 132			
9	0	0 141 7651		0.989 9003		0.143 2115		6.982 6781		0	51	
	10	8131	480	8934	69	2610	495	.980 2666	24 115	50		
	20	8611	480	8866	68	3105	495	.977 8567	24 099	40		
	30	9091	480	8797	69	3600	495	.975 4485	24 082	30		
	40	9571	480	8728	69	4094	494	.973 0419	24 066	20		
	50	0 142 0051	480	8659	69	4589	495	.970 6369	24 050	10		
			480		69		495		24 034			
10	0	0 142 0631		0.989 8590		0.143 5084		6.968 2335		0	50	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

81° 50'

8° 10'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
10	0	0.142 0531		0.989 8590		0.143 5084		6 968 2335		0	50	
	10	1011	480	8522	68	5579	495	.965 8318	24 017	50		
	20	1491	480	8453	69	6074	495	.963 4317	24 001	40		
	30	1970	479	8384	69	6568	494	.961 0331	23 986	30		
	40	2450	480	8315	69	7063	495	.958 6363	23 968	20		
	50	2930	480	8246	69	7558	495	.956 2410	23 953	10		
			480				495		23 937			
11	0	0.142 3410		0.989 8177		0.143 8053		6 953 8473		0	49	
	10	3890	480	8108	69	8548	495	.951 4553	23 920	50		
	20	4370	480	8039	69	9043	495	.949 0649	23 904	40		
	30	4850	480	7970	69	9537	494	.946 6761	23 888	30		
	40	5330	479	7901	70	10032	495	.944 2888	23 873	20		
	50	5809	480	7831	69	10527	495	.941 9032	23 856	10		
			480				495		23 840			
12	0	0.142 6289		0.989 7762		0.144 1022		6.939 5192		0	48	
	10	6769	480	7693	69	1517	495	.937 1369	23 823	50		
	20	7249	480	7624	69	2012	495	.934 7561	23 808	40		
	30	7729	480	7555	69	2507	495	.932 3769	23 792	30		
	40	8209	480	7486	69	3002	495	.929 9993	23 776	20		
	50	8689	480	7416	70	3497	495	.927 6233	23 760	10		
			479		69		494		23 744			
13	0	0.142 9168		0.989 7347		0.144 3991		6.925 2489		0	47	
	10	9648	480	7278	69	4486	495	.922 8761	23 728	50		
	20	0 143 0128	480	7208	70	4981	495	.920 5049	23 712	40		
	30	0608	480	7139	69	5476	495	.918 1352	23 697	30		
	40	1088	480	7070	69	5971	495	.915 7672	23 680	20		
	50	1568	480	7000	70	6466	495	.913 4008	23 664	10		
			479		69		495		23 649			
14	0	0.143 2047		0.989 6931		0.144 6961		6.911 0359		0	46	
	10	2527	480	6861	70	7456	495	.908 6726	23 633	50		
	20	3007	480	6792	69	7951	495	.906 3109	23 617	40		
	30	3487	480	6722	70	8446	495	.903 9508	23 601	30		
	40	3967	480	6653	69	8941	495	.901 5923	23 585	20		
	50	4446	479	6583	70	9436	495	.899 2353	23 570	10		
			480		69		495		23 554			
15	0	0.143 4926		0.989 6514		0.144 9931		6.896 8799		0	45	
	10	5406	480	6444	70	0 145 0426	495	.894 5261	23 538	50		
	20	5886	480	6375	69	0921	495	.892 1739	23 522	40		
	30	6366	480	6305	70	1416	495	.889 8232	23 507	30		
	40	6845	479	6235	70	1911	495	.887 4742	23 490	20		
	50	7325	480	6166	69	2406	495	.885 1266	23 476	10		
			480		70		495		23 459			
16	0	0.143 7805		0.989 6096		0.145 2901		6.882 7807		0	44	
	10	8285	480	6026	70	3396	495	.880 4363	23 444	50		
	20	8764	479	5957	69	3891	495	.878 0935	23 428	40		
	30	9244	480	5887	70	4386	495	.875 7522	23 413	30		
	40	9724	480	5817	70	4881	495	.873 4125	23 397	20		
	50	0 144 0204	480	5747	70	5376	495	.871 0743	23 382	10		
			480				496		23 365			
17	0	0.144 0684		0.989 5677		0.145 5872		6.868 7378		0	43	
	10	1163	479	5608	69	6367	495	.866 4027	23 351	50		
	20	1643	480	5538	70	6862	495	.864 0692	23 335	40		
	30	2123	480	5468	70	7357	495	.861 7373	23 319	30		
	40	2603	479	5398	70	7852	495	.859 4069	23 304	20		
	50	3082	480	5328	70	8347	495	.857 0781	23 288	10		
			480				495		23 273			
18	0	0.144 3562		0.989 5258		0.145 8842		6.854 7508		0	42	
	10	4042	480	5188	70	9337	495	.852 4251	23 257	50		
	20	4521	479	5118	70	9833	496	.850 1009	23 242	40		
	30	5001	480	5048	70	0.146 0328	495	.847 7783	23 226	30		
	40	5481	480	4978	70	0823	495	.845 4572	23 211	20		
	50	5961	480	4908	70	1318	495	.843 1376	23 196	10		
			479				495		23 180			
19	0	0.144 6440		0.989 4838		0.146 1813		6.840 8196		0	41	
	10	6920	480	4767	71	2308	495	.838 5031	23 165	50		
	20	7400	480	4697	70	2804	496	.836 1881	23 150	40		
	30	7879	479	4627	70	3299	495	.833 8747	23 134	30		
	40	8359	480	4557	70	3794	495	.831 5628	23 119	20		
	50	8839	480	4487	71	4289	495	.829 2525	23 103	10		
			480				495		23 088			
20	0	0.144 9319		0.989 4416		0.146 4784		6.826 9437		0	40	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

81° 40'

8° 20'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
20	0	0.144 9319		0.989 4416		0.146 4784		6.826 9437		0	40	
	10	9798	479	4346	70	5280	496	.824 6364	23 073	50		Sine
	20	0.145 0278	480	4276	70	5775	495	.822 3306	23 058	40		479 480
	30	0758	480	4205	71	6270	495	.820 0264	23 042	30		1 47 9 48 0
	40	1237	479	4135	70	6765	495	.817 7236	23 028	20		2 95 8 96 0
	50	1717	480	4065	70	7260	495	.815 4224	23 012	10		3 143 7 144 0
			480		71		496		22 997			4 191 6 192 0
21	0	0.145 2197		0.989 3994		0.146 7756		6.813 1227		0	39	
	10	2676	479	3501	70	8251	495	.810 8246	22 981	50		5 239 5 240 0
	20	3156	480	3854	70	8746	495	.808 5279	22 967	40		6 287 4 288 0
	30	3636	480	3783	71	9242	496	.806 2328	22 951	30		7 335 3 336 0
	40	4115	479	3713	70	9737	495	.803 9392	22 936	20		8 383 2 384 0
	50	4595	480	3642	71	0.147 0232	495	.801 6471	22 921	10		9 431 1 432 0
			480		70		496		22 906			
22	0	0.145 5075		0.989 3572		0.147 0727		6.799 3565		0	38	
	10	5554	479	3501	71	1223	496	.797 0674	22 891	50		Cosine
	20	6034	480	3430	71	1718	495	.794 7799	22 875	40		70 71 72
	30	6514	480	3360	71	2213	495	.792 4938	22 861	30		1 7 0 7 1 7 2
	40	6993	479	3289	70	2709	496	.790 2092	22 846	20		2 14 0 14 2 14 4
	50	7473	480	3219	70	3204	495	.787 9262	22 830	10		3 21 0 21 3 21 6
			480		71		495		22 816			4 28 0 28 1 28 8
23	0	0.146 7963		0.989 3148		0.147 3699		6.785 6446		0	37	
	10	8432	479	3077	71	4195	496	.783 3646	22 800	50		5 35 0 35 5 36 0
	20	8912	480	3006	71	4690	495	.781 0860	22 786	40		6 42 0 42 6 43 2
	30	9391	479	2936	70	5185	495	.778 8089	22 771	30		7 49 0 49 7 50 4
	40	9871	480	2865	71	5681	496	.776 5334	22 755	20		8 56 0 56 8 57 6
	50	0.146 0351	480	2794	71	6176	495	.774 2593	22 741	10		9 63 0 63 9 64 8
			479		70		496		22 726			
24	0	0.146 0830		0.989 2723		0.147 6672		6.771 9867		0	36	
	10	1310	480	2652	71	7167	495	.769 7157	22 710	50		Tangent
	20	1790	480	2582	70	7662	495	.767 4461	22 696	40		495 496
	30	2269	479	2511	71	8158	496	.765 1780	22 681	30		1 49 5 49 6
	40	2749	480	2440	71	8653	495	.762 9114	22 666	20		2 99 0 99 2
	50	3228	479	2369	70	9149	496	.760 6462	22 652	10		3 148 5 148 8
			480		71		495		22 636			4 198 0 198 4
25	0	0.146 3708		0.989 2298		0.147 9644		6.758 3826		0	35	
	10	4187	479	2227	71	0.148 0139	495	.756 1204	22 622	50		5 247 5 248 0
	20	4667	480	2156	71	0635	496	.753 8597	22 607	40		6 297 0 297 6
	30	5147	480	2085	71	1130	495	.751 6005	22 592	30		7 346 5 347 2
	40	5626	479	2014	70	1626	496	.749 3428	22 577	20		8 396 0 396 8
	50	6106	480	1943	71	2121	495	.747 0866	22 562	10		9 445 5 446 4
			479		70		496		22 548			
26	0	0.146 6585		0.989 1872		0.148 2617		6.744 8318		0	34	
	10	7065	480	1801	71	3112	495	.742 5785	22 533	50		Cotangent
	20	7545	480	1730	72	3608	496	.740 3267	22 518	40		23 000 22 800
	30	8024	479	1658	71	4103	495	.738 0763	22 504	30		1 2 300 0 2 280 0
	40	8504	480	1587	71	4599	496	.735 8274	22 489	20		2 4 600 0 4 560 0
	50	8983	479	1516	70	5094	495	.733 5800	22 474	10		3 6 900 0 6 840 0
			480		71		496		22 459			4 9 200 0 9 120 0
27	0	0.146 9463		0.989 1445		0.148 5690		6.731 3341		0	33	
	10	9942	479	1373	72	6085	495	.729 0896	22 445	50		5 11 500 0 11 490 0
	20	0.147 0422	480	1302	71	6581	496	.726 8466	22 430	40		6 13 800 0 13 680 0
	30	0901	479	1231	70	7076	495	.724 6050	22 416	30		7 16 100 0 15 960 0
	40	1381	480	1160	71	7572	496	.722 3649	22 401	20		8 18 400 0 18 240 0
	50	1860	479	1088	70	8067	495	.720 1263	22 386	10		9 20 700 0 20 520 0
			480		71		496		22 372			
28	0	0.147 2340		0.989 1017		0.148 8563		6.717 8891		0	32	
	10	2820	480	0945	72	9058	495	.715 6534	22 357	50		22 600 22 400
	20	3299	479	0874	71	9554	496	.713 4191	22 343	40		1 2 260 0 2 240 0
	30	3779	480	0803	70	0.149 0050	495	.711 1863	22 328	30		2 4 520 0 4 480 0
	40	4258	479	0731	71	0545	496	.708 9550	22 313	20		3 6 780 0 6 720 0
	50	4738	480	0660	70	1041	495	.706 7251	22 299	10		4 9 040 0 8 960 0
			479		71		496		22 285			5 11 300 0 11 200 0
29	0	0.147 5217		0.989 0588		0.149 1536		6.704 4966		0	31	
	10	5697	480	0517	72	2032	495	.702 2696	22 270	50		6 13 560 0 13 440 0
	20	6176	479	0445	71	2528	496	.700 0440	22 256	40		7 15 820 0 15 680 0
	30	6656	480	0374	70	3023	495	.697 8199	22 241	30		8 18 080 0 17 920 0
	40	7135	479	0302	71	3519	496	.695 5973	22 226	20		9 20 340 0 20 160 0
	50	7615	480	0230	70	4014	495	.693 3760	22 213	10		22 200
			479		71		496		22 198			1 2 220 0
30	0	0.147 8094		0.989 0159		0.149 4510		6.691 1562		0	30	
			480		70		495		22 184			2 4 440 0
					71		496		22 170			3 6 660 0
					72		495		22 156			4 8 880 0
					73		496		22 142			5 11 100 0
					74		495		22 128			6 13 320 0
					75		496		22 114			7 15 540 0
					76		495		22 100			8 17 760 0
					77		496		22 086			9 19 980 0
					78		495		22 072			
					79		496		22 058			
					80		495		22 044			
					81		496		22 030			
					82		495		22 016			
					83		496		22 002			
					84		495		21 988			
					85		496		21 974			
					86		495		21 960			
					87		496		21 946			
					88		495		21 932			
					89		496		21 918			
					90		495		21 904			
					91		496		21 890			
					92		495		21 876			
					93		496		21 862			
					94		495		21 848			
					95		496		21 834			
					96		495		21 820			
					97		496		21 806			
					98		495		21 792			
					99		496		21 778			
					100		495		21 764			
									21 750			
									21 736			
									21 722			
									21 708			
									21 694			
									21 680			
									21 666			
									21 652			
									21 638			
									21 624			
									21 610			
									21 596			
									21 582			
									21 568			
									21 554			
									21 540			
									21 526			
									21 512			
									21 498			
									21 484			
									21 470			
									21 456			
									21 442			
									21 428			
									21 414			
									21 400			

8° 30'

'	"	Sine	Diff.	Cosine	Diff.	Tangent	Diff.	Cotangent	Diff.			Proportional Parts
30	0	0.147 8094		0.989 0159		0.149 4510		6 691 1562		0	30	
	10	8574	480	0087	72	5006	496	.688 9379	22 183	50		Sine
	20	9053	479	0015	72	5501	495	.686 7210	22 169	40		479 480
	30	9533	480	0.988 9944	71	5997	496	.684 5055	22 155	30		1 47 9 48 0
	40	0 148 0012	479	9872	72	6493	496	.682 2915	22 140	20		2 95 8 96 0
	50	0492	480	9800	72	6988	495	.680 0789	22 126	10		3 143 7 144 0
			479				496		22 112			4 191 6 192 0
31	0	0.148 0971		0.988 9728		0 149 7484		6.677 8677		0	29	5 239 5 240 0
	10	1450	479	9656	72	7980	496	.675 6580	22 097	50		6 287 4 288 0
	20	1930	480	9585	71	8475	495	.673 4496	22 084	40		7 335 3 336 0
	30	2409	479	9513	72	8971	496	.671 2428	22 068	30		8 383 2 384 0
	40	2889	480	9441	72	9467	495	.669 0373	22 055	20		9 431 1 432 0
	50	3368	479	9369	72	9963	496	.666 8333	22 040	10		
			480						22 026			
32	0	0.148 3848		0.988 9297		0 150 0458		6 664 6307		0	28	Cosine
	10	4327	479	9225	72	0954	496	.662 4295	22 012	50		71 72 73
	20	4807	480	9153	72	1450	496	.660 2297	21 998	40		1 7 1 7 2 7 3
	30	5286	479	9081	72	1945	495	.658 0314	21 983	30		2 14 2 14 4 14 6
	40	5765	480	9009	71	2441	496	.655 8345	21 969	20		3 21 3 21 6 21 9
	50	6245	479	8937	72	2937	495	.653 6390	21 955	10		4 28 4 28 8 29 2
			480				496		21 941			5 35 5 36 0 36 5
33	0	0.148 6724		0 988 8865		0 150 3433		6 661 4449		0	27	6 42 6 43 2 43 8
	10	7204	480	8793	72	3929	496	.649 2522	21 927	50		7 49 7 50 4 51 1
	20	7683	479	8721	72	4424	495	.647 0609	21 913	40		8 56 8 57 6 58 4
	30	8163	480	8649	72	4920	496	.644 8711	21 898	30		9 63 9 64 8 65 7
	40	8642	479	8576	73	5416	495	.642 6827	21 884	20		
	50	9121	480	8504	72	5912	496	.640 4956	21 871	10		
			479				495		21 856			Tangent
34	0	0 148 9601		0 988 8432		0 150 6408		6 638 3100		0	26	495 496 497
	10	0 149 0080	479	8360	72	6903	495	.636 1258	21 842	50		1 49 5 49 6 49 7
	20	0560	480	8288	72	7399	496	.633 9430	21 828	40		2 99 0 99 2 99 4
	30	1039	479	8215	73	7894	495	.631 7616	21 814	30		3 118 5 118 8 119 1
	40	1518	480	8143	72	8391	497	.629 5816	21 800	20		4 198 0 198 4 198 8
	50	1998	479	8071	73	8887	496	.627 4030	21 786	10		5 247 5 248 0 248 5
			480				495		21 772			6 297 0 297 6 298 2
35	0	0 149 2477		0.988 7998		0 150 9383		6 625 2258		0	25	7 346 5 347 2 347 9
	10	2957	480	7926	72	9878	495	.623 0500	21 758	50		8 396 0 396 8 397 6
	20	3436	479	7854	72	0 151 0374	496	.620 8756	21 744	40		9 445 5 446 4 447 3
	30	3915	480	7781	73	0870	495	.618 7025	21 731	30		
	40	4395	479	7709	72	1366	496	.616 5309	21 716	20		
	50	4874	480	7636	73	1862	495	.614 3607	21 702	10		
			479				496		21 688			Cotangent
36	0	0.149 5353		0 988 7564		0 151 2358		6 612 1919		0	24	22 200 22 100
	10	5833	480	7491	73	2854	496	.610 0244	21 675	50		1 2 220 0 2 210 0
	20	6312	479	7419	72	3350	495	.607 8584	21 660	40		2 4 440 0 4 420 0
	30	6792	480	7346	73	3846	496	.605 6937	21 647	30		3 6 660 0 6 630 0
	40	7271	479	7274	72	4341	495	.603 5304	21 633	20		4 8 880 0 8 840 0
	50	7750	480	7201	73	4837	496	.601 3685	21 619	10		5 11 100 0 11 050 0
			479				495		21 605			6 13 420 0 13 260 0
37	0	0 149 8230		0.988 7128		0.151 5333		6.599 2080		0	23	7 15 540 0 15 470 0
	10	8709	479	7056	72	5829	496	.597 0489	21 591	50		8 17 760 0 17 680 0
	20	9188	480	6983	73	6325	495	.594 8911	21 578	40		9 19 980 0 19 890 0
	30	9668	479	6910	72	6821	496	.592 7347	21 564	30		
	40	0.1 0147	480	6838	73	7317	495	.590 5798	21 549	20		1 2 190 0 2 170 0
	50	0626	479	6765	72	7813	496	.588 4261	21 537	10		2 4 380 0 4 340 0
			480				495		21 522			3 6 570 0 6 510 0
38	0	0 150 1106		0.988 6692		0.151 8309		6.586 2739		0	22	4 8 760 0 8 680 0
	10	1585	479	6619	73	8805	496	.584 1230	21 509	50		5 10 950 0 10 850 0
	20	2064	480	6547	72	9301	495	.581 9735	21 495	40		6 13 140 0 13 020 0
	30	2543	479	6474	73	9797	496	.579 8254	21 481	30		7 15 330 0 15 190 0
	40	3023	480	6401	72	0.152 0293	495	.577 6786	21 468	20		8 17 520 0 17 360 0
	50	3502	479	6328	73	0789	496	.575 5333	21 453	10		9 19 710 0 19 530 0
			480				495		21 441			
39	0	0.150 3981		0.988 6255		0.152 1285		6.573 3892		0	21	21 500 21 300
	10	4461	480	6182	73	1781	496	.571 2466	21 426	50		1 2 150 0 2 130 0
	20	4940	479	6109	72	2277	495	.569 1053	21 413	40		2 4 300 0 4 260 0
	30	5419	480	6036	73	2773	496	.566 9654	21 399	30		3 6 450 0 6 390 0
	40	5899	479	5963	72	3269	495	.564 8268	21 386	20		4 8 600 0 8 520 0
	50	6378	480	5890	73	3765	496	.562 6896	21 372	10		5 10 750 0 10 650 0
			479				497		21 358			6 12 900 0 12 780 0
40	0	0.150 6857		0.988 5817		0.152 4282		6.560 5538		0	20	7 15 050 0 14 910 0
												8 17 200 0 17 040 0
												9 19 350 0 19 170 0
		Cosine	Diff.	Sine	Diff.	Cotangent	Diff.	Tangent	Diff.	"	'	Proportional Parts

81° 20'

8° 40'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
40	0	0.150 6857		0.988 5817		0.152 4262		6.560 5538		0	20	
	10	7336	479	5744	73	4758	496	558 4193	21 345	50		Sine
	20	7816	480	5671	73	5254	496	.556 2862	21 331	40		479 480
	30	8295	479	5598	73	5750	496	.554 1544	21 318	30		1 47 9 48 0
	40	8774	479	5525	73	6246	496	.552 0240	21 304	20		2 95 8 96 0
	50	9253	479	5452	74	6742	496	.549 8949	21 291	10		3 143 7 144 0
			480				496		21 277			4 191 6 192 0
41	0	0.150 9733		0.988 5378		0.152 7238		6.547 7672		0	19	
	10	0 151 0212	479	5305	73	7734	496	.545 6409	21 263	50		5 239 5 240 0
	20	0691	479	5232	73	8230	496	.543 5158	21 251	40		6 287 4 288 0
	30	1170	479	5159	74	8727	497	.541 3922	21 236	30		7 335 3 336 0
	40	1650	480	5085	73	9223	496	.539 2699	21 223	20		8 383 2 384 0
	50	2129	479	5012	73	9719	496	.537 1489	21 210	10		9 431 1 432 0
			479				496		21 196			
42	0	0.151 2608		0.988 4939		0.153 0215		6.535 0293		0	18	
	10	3087	479	4866	73	0711	496	.532 9110	21 183	50		Cosine
	20	3567	480	4792	74	1207	496	.530 7940	21 170	40		73 74 75
	30	4046	479	4719	73	1704	497	.528 6784	21 156	30		1 7 3 7 4 7 5
	40	4525	479	4645	74	2200	496	.526 5642	21 142	20		2 14 6 14 8 15 0
	50	5004	479	4572	73	2696	496	.524 4512	21 130	10		3 21 9 22 2 22 5
			480		74		496		21 116			4 29 2 29 6 30 0
43	0	0 151 5484		0.988 4498		0.153 3192		6.522 3396		0	17	
	10	5963	479	4425	73	3688	496	.520 2294	21 102	50		5 36 5 37 0 37 5
	20	6442	479	4351	74	4185	497	.518 1205	21 089	40		6 43 8 44 4 45 0
	30	6921	479	4278	73	4681	496	.516 0129	21 076	30		7 51 1 51 8 52 5
	40	7400	479	4204	74	5177	496	.513 9066	21 063	20		8 58 4 59 2 60 0
	50	7880	480	4131	73	5673	496	.511 8017	21 049	10		9 65 7 66 6 67 5
			479		74		497		21 036			
44	0	0.151 8359		0.988 4057		0.153 6170		6.509 6981		0	16	
	10	8838	479	3984	73	6666	496	.507 5958	21 023	50		Tangent
	20	9317	479	3910	74	7162	496	.505 4949	21 009	40		496 497
	30	9796	479	3836	73	7658	496	.503 3953	20 996	30		1 49 6 49 7
	40	0 152 0276	480	3763	74	8155	497	.501 2970	20 983	20		2 99 2 99 4
	50	0755	479	3689	73	8651	496	.499 2000	20 970	10		3 148 8 149 1
			479		74		496		20 957			4 198 4 198 8
45	0	0 152 1234		0.988 3615		0.153 9147		6.497 1043		0	15	
	10	1713	479	3541	74	9644	497	.495 0100	20 943	50		5 248 0 248 5
	20	2192	479	3468	73	0154 0140	496	.492 9170	20 930	40		6 297 6 298 2
	30	2671	479	3394	74	0636	496	.490 8253	20 917	30		7 347 2 347 9
	40	3151	480	3320	73	1132	496	.488 7349	20 904	20		8 396 8 397 6
	50	3630	479	3246	74	1629	497	.486 6458	20 891	10		9 446 4 447 3
			479		74		496		20 877			
46	0	0 152 4109		0.988 3172		0.154 2125		6.484 5581		0	14	
	10	4588	479	3098	74	2621	496	.482 4716	20 865	50		Cotangent
	20	5067	479	3024	73	3118	497	.480 3865	20 851	40		21 300 21 100
	30	5546	479	2950	74	3614	496	.478 3027	20 838	30		1 2 130 0 2 110 0
	40	6025	479	2876	73	4111	497	.476 2202	20 825	20		2 4 260 0 4 220 0
	50	6505	480	2802	74	4607	496	.474 1390	20 812	10		3 6 390 0 6 330 0
			479		74		496		20 799			4 8 520 0 8 440 0
47	0	0 152 6984		0.988 2728		0 154 5103		6.472 0591		0	13	
	10	7463	479	2654	74	5600	497	.469 9805	20 786	50		5 10 650 0 10 550 0
	20	7942	479	2580	73	6096	496	.467 9032	20 773	40		6 12 780 0 12 660 0
	30	8421	479	2506	74	6593	497	.465 8272	20 760	30		7 14 910 0 14 770 0
	40	8900	479	2432	73	7089	496	.463 7525	20 747	20		8 17 010 0 16 880 0
	50	9379	479	2358	74	7585	496	.461 6791	20 734	10		9 19 170 0 18 990 0
			479		74		497		20 721			
48	0	0.152 9858		0.988 2284		0.154 8082		6.459 6070		0	12	
	10	0.153 0337	479	2210	74	8578	496	.457 5362	20 708	50		20 900 20 700
	20	0817	480	2135	75	9075	497	.455 4667	20 695	40		1 2 090 0 2 070 0
	30	1296	479	2061	74	9571	496	.453 3985	20 682	30		2 4 180 0 1 140 0
	40	1775	479	1987	73	0068	497	.451 3316	20 669	20		3 6 270 0 6 210 0
	50	2254	479	1913	75	0564	496	.449 2660	20 656	10		4 8 360 0 8 280 0
			479				497		20 643			5 10 450 0 10 350 0
49	0	0.153 2733		0.988 1838		0.155 1061		6.447 2017		0	11	
	10	3212	479	1764	74	1557	496	.445 1387	20 630	50		6 12 540 0 12 420 0
	20	3691	479	1690	75	2053	496	.443 0769	20 618	40		7 14 630 0 14 490 0
	30	4170	479	1615	74	2550	497	.441 0164	20 605	30		8 16 720 0 16 560 0
	40	4649	479	1541	73	3046	496	.438 9573	20 591	20		9 18 810 0 18 630 0
	50	5128	479	1467	75	3543	497	.436 8994	20 579	10		20 500
			479				497		20 566			1 2 050 0
50	0	0.153 5607		0.988 1392		0.155 4040		6.434 8428		0	10	
												2 4 100 0
												3 6 150 0
												4 8 200 0
												5 10 250 0
												6 12 300 0
												7 14 350 0
												8 16 400 0
												9 18 450 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

81° 10'

8° 50'

	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
50	0	0.153 5607		0.988 1392		0.155 4040		6.434 8428		0	10	Sine
	10	6086	479	1318	74	4536	496	.432 7875	20 553	50		478 479 480
	20	6566	480	1243	75	5033	497	.430 7334	20 541	40		1 47 8 47 9 48 0
	30	7045	479	1169	74	5529	496	.428 6807	20 527	30		2 95 6 95 8 96 0
	40	7524	479	1094	75	6026	497	.426 6292	20 515	20		3 143 4 143 7 144 0
	50	8003	479	1020	74	6522	496	.424 5790	20 502	10		4 191 2 191 6 192 0
			479		75		497		20 489			5 239 0 239 5 240 0
51	0	0.153 8482		0.988 0945		0.155 7019		6.422 5301		0	9	Cosine
	10	8961	479	0870	75	7515	496	.420 4824	20 477	0		74 75 76
	20	9440	479	0796	74	8012	497	.418 4361	20 463	50		1 14 8 15 0 15 2
	30	9919	479	0721	75	8509	497	.416 3910	20 451	40		2 22 2 22 5 22 8
	40	0.154 0398	479	0646	74	9005	496	.414 3471	20 439	30		3 29 6 30 0 30 4
	50	0877	479	0572	75	9502	497	.412 3046	20 425	20		4 37 0 37 5 38 0
			479		75		496		20 413	10		5 44 4 45 0 45 6
52	0	0.154 1356		0.988 0497		0.155 9998		6.410 2633		0	8	Tangent
	10	1835	479	0422	75	0.156 0495	497	408 2233	20 400	50		1 49 6 49 7
	20	2314	479	0348	74	0992	497	406 1845	20 388	40		2 99 2 99 4
	30	2793	479	0273	75	1488	496	.404 1470	20 375	30		3 148 8 149 1
	40	3272	479	0198	75	1985	497	.402 1108	20 362	20		4 198 4 198 8
	50	3751	479	0123	75	2481	496	.400 0759	20 349	10		5 248 0 248 5
			479		75		497		20 337			6 297 6 298 2
53	0	0.154 4230		0.988 0048		0.156 2978		6.398 0422		0	7	Cotangent
	10	4709	479	0.987 9973	75	3475	497	396 0097	20 325	50		1 496 497
	20	5188	479	9898	74	3971	496	.393 9786	20 311	40		2 99 2 99 4
	30	5667	479	9824	75	4468	497	.391 9487	20 299	30		3 148 8 149 1
	40	6146	479	9749	75	4965	497	.389 9200	20 287	20		4 198 4 198 8
	50	6625	479	9674	75	5462	496	.387 8926	20 274	10		5 248 0 248 5
			479		75		497		20 261			6 297 6 298 2
54	0	0.154 7104		0.987 9599		0.156 5958		6.385 8665		0	6	Tangent
	10	7583	479	9524	75	6455	497	.383 8416	20 249	50		1 496 497
	20	8062	479	9449	75	6952	497	.381 8179	20 237	40		2 99 2 99 4
	30	8541	479	9374	75	7448	496	.379 7955	20 224	30		3 148 8 149 1
	40	9020	479	9298	75	7945	497	.377 7744	20 211	20		4 198 4 198 8
	50	9499	479	9223	75	8442	497	.375 7545	20 199	10		5 248 0 248 5
			479		75		497		20 186			6 297 6 298 2
55	0	0.154 9978		0.987 9148		0.156 8939		6.373 7359		0	5	Cotangent
	10	0.155 0457	479	9073	75	9435	496	.371 7185	20 174	50		1 20 500 20 400
	20	0936	479	8998	75	9932	497	.369 7023	20 162	40		2 2 050 0 2 040 0
	30	1415	479	8923	75	0.157 0429	497	.367 6875	20 148	30		3 4 100 0 4 080 0
	40	1893	479	8847	75	0926	497	.365 6738	20 137	20		4 6 150 0 6 120 0
	50	2372	479	8772	75	1422	476	.363 6614	20 124	10		5 8 200 0 8 160 0
			479		75		497		20 112			6 10 250 0 10 200 0
56	0	0.155 2851		0.987 8697		0.157 1919		6.361 6502		0	4	Tangent
	10	3330	479	8622	75	2416	497	359 6403	20 099	50		1 12 300 0 12 240 0
	20	3809	479	8546	75	2913	497	.357 6316	20 087	40		2 14 350 0 14 280 0
	30	4288	479	8471	75	3410	497	.355 6241	20 075	30		3 16 400 0 16 320 0
	40	4767	479	8396	75	3906	496	.353 6179	20 062	20		4 18 450 0 18 360 0
	50	5246	479	8320	75	4403	497	.351 6129	20 050	10		5 20 000 0 20 000 0
			479		75		497		20 037			6 2 030 0 2 020 0
57	0	0.155 5725		0.987 8245		0.157 4900		6.349 6092		0	3	Cotangent
	10	6204	479	8169	75	5397	497	347 6067	20 025	50		1 4 060 0 4 040 0
	20	6683	479	8094	75	5894	497	.345 6054	20 013	40		2 6 090 0 6 060 0
	30	7162	479	8018	75	6391	497	.343 6053	20 001	30		3 8 120 0 8 080 0
	40	7640	479	7943	75	6887	496	.341 6065	19 988	20		4 10 150 0 10 100 0
	50	8119	479	7867	75	7384	497	.339 6089	19 976	10		5 12 180 0 12 120 0
			479		75		497		19 963			6 14 210 0 14 140 0
58	0	0.155 8598		0.987 7792		0.157 7881		6.337 6126		0	2	Tangent
	10	9077	479	7716	75	8378	497	.335 6174	19 952	50		1 16 240 0 16 160 0
	20	9556	479	7641	75	8875	497	.333 6235	19 939	40		2 18 270 0 18 180 0
	30	0.156 0035	479	7565	75	9372	497	.331 6308	19 927	30		3 2 010 0 2 000 0
	40	0514	479	7489	75	9869	497	.329 6394	19 914	20		4 4 030 0 4 000 0
	50	0993	479	7414	75	0.158 0366	497	.327 6491	19 903	10		5 6 060 0 6 000 0
			479		75		497		19 890			6 8 040 0 8 000 0
59	0	0.156 1472		0.987 7338		0.158 0863		6.325 6601		0	1	Cotangent
	10	1950	479	7262	75	1360	497	.323 6723	19 878	50		1 10 050 0 10 000 0
	20	2429	479	7187	75	1857	497	.321 6857	19 866	40		2 12 080 0 12 000 0
	30	2908	479	7111	75	2354	496	.319 7003	19 854	30		3 14 070 0 14 000 0
	40	3387	479	7035	75	2850	496	.317 7162	19 841	20		4 16 080 0 16 000 0
	50	3866	479	6959	75	3347	497	.315 7332	19 830	10		5 18 090 0 18 000 0
			479		75		497		19 817			6 20 000 0 20 000 0
60	0	0.156 4345		0.987 6883		0.158 3844		6.313 7515		0	0	Proportional Parts
												19 900 19 800
												1 1 990 0 1 980 0
												2 3 980 0 3 960 0
												3 5 970 0 5 940 0
												4 7 960 0 7 920 0
												5 9 950 0 9 900 0
												6 11 940 0 11 880 0
												7 13 930 0 13 860 0
												8 15 920 0 15 840 0
												9 17 910 0 17 820 0
		Cosine	Diff.	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	"	Proportional Parts

81° 00'

9° 00'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
0	0	0.156 4345		0.987 6883		0.158 3844		6.313 7515		0	60	Sine
	10	4823	478	6808	76	4341	497	.311 7710	19 805	50		478 479
	20	5302	479	6732	76	4838	497	.309 7917	19 793	40		1 47 8 47 9
	30	5781	479	6656	76	5335	497	.307 8136	19 781	30		2 95 6 95 8
	40	6260	479	6580	76	5832	497	.305 8367	19 769	20		3 113 4 143 7
	50	6739	479	6504	76	6329	497	.303 8611	19 756	10		4 191 2 191 6
			479		76		497		19 745			5 239 0 239 5
1	0	0.156 7218		0.987 6428		0.158 6826		6.301 8866		0	59	6 286 8 287 4
	10	7696	478	6352	76	7323	497	.299 9134	19 732	50		7 334 6 335 3
	20	8175	479	6276	76	7820	497	.297 9413	19 721	40		8 382 4 383 2
	30	8654	479	6200	76	8317	497	.295 9705	19 708	30		9 430 2 431 1
	40	9133	479	6124	76	8815	498	.294 0008	19 697	20		
	50	9612	479	6048	76	9312	497	.292 0324	19 684	10		Cosine
			479		76		497		19 673			75 76 77 78
2	0	0.157 0091		0.987 5972		0.158 9809		6.290 0651		0	58	1 7 5 7 6 7 7 7 8
	10	0569	478	5896	76	0306	497	.288 0991	19 660	50		2 15 0 15 2 15 4 15 6
	20	1048	479	5819	77	0803	497	.286 1342	19 649	40		3 22 5 22 8 23 1 23 4
	30	1527	479	5743	76	1300	497	.284 1706	19 639	30		4 30 0 30 4 30 8 31 2
	40	2006	478	5667	76	1797	497	.282 2081	19 625	20		5 37 5 38 0 38 5 39 0
	50	2484	479	5591	77	2294	497	.280 2469	19 612	10		6 45 0 45 6 46 2 46 8
			479		77		497		19 601			7 52 5 53 2 53 9 54 6
									19 589			8 60 0 60 8 61 6 62 4
									19 578			9 67 5 68 4 69 3 70 2
3	0	0.157 2963		0.987 5514		0.159 2791		6.278 2868		0	57	Tangent
	10	3442	479	5438	76	3288	497	.276 3279	19 566	50		497 498
	20	3921	479	5362	76	3785	497	.274 3703	19 556	40		1 49 7 49 8
	30	4400	478	5286	77	4283	498	.272 4138	19 545	30		2 99 4 99 6
	40	4878	479	5209	76	4780	497	.270 4585	19 533	20		3 149 1 149 4
	50	5357	479	5133	76	5277	497	.268 5044	19 521	10		4 198 8 199 2
			479		76		497		19 509			5 248 5 249 0
4	0	0.157 5836		0.987 5057		0.159 5774		6.266 5515		0	56	6 298 2 298 8
	10	6315	478	4980	76	6271	497	.264 5997	19 518	50		7 347 9 348 6
	20	6793	478	4904	76	6768	497	.262 6492	19 505	40		8 397 6 398 4
	30	7272	479	4827	77	7266	498	.260 6998	19 494	30		9 447 3 448 2
	40	7751	479	4751	76	7763	497	.258 7516	19 482	20		
	50	8230	478	4674	76	8260	497	.256 8046	19 470	10		Cotangent
			478		76		497		19 458			19 800 19 700
5	0	0.157 8708		0.987 4598		0.159 8757		6.254 8588		0	55	1 1 980 0 1 970 0
	10	9187	479	4521	77	9254	498	.252 9142	19 446	50		2 3 960 0 3 940 0
	20	9666	479	4445	77	9752	497	.250 9707	19 435	40		3 5 940 0 5 910 0
	30	0.158 0145	479	4368	77	0.160 0249	497	.249 0284	19 423	30		4 7 920 0 7 880 0
	40	0623	478	4291	76	0746	497	.247 0873	19 411	20		5 9 900 0 9 850 0
	50	1102	479	4215	76	1243	497	.245 1474	19 399	10		6 11 880 0 11 820 0
			479		77		497		19 388			7 13 860 0 13 790 0
6	0	0.158 1581		0.987 4138		0.160 1740		6.243 2086		0	54	8 15 840 0 15 760 0
	10	2059	478	4061	77	2238	498	.241 2710	19 376	50		9 17 820 0 17 730 0
	20	2538	479	3985	76	2735	497	.239 3346	19 364	40		19 500 19 500
	30	3017	479	3908	77	3232	497	.237 3994	19 352	30		1 1 960 0 1 950 0
	40	3495	478	3831	77	3730	498	.235 4653	19 341	20		2 3 920 0 3 900 0
	50	3974	479	3754	76	4227	497	.233 5324	19 329	10		3 5 880 0 5 850 0
			479		76		497		19 317			4 7 840 0 7 800 0
7	0	0.158 4453		0.987 3678		0.160 4724		6.231 6007		0	53	5 9 800 0 9 750 0
	10	4932	478	3601	77	5221	497	.229 6701	19 306	50		6 11 760 0 11 700 0
	20	5410	479	3524	77	5719	498	.227 7407	19 294	40		7 13 720 0 13 650 0
	30	5889	479	3447	77	6216	497	.225 8125	19 282	30		8 15 680 0 15 600 0
	40	6368	478	3370	77	6713	497	.223 8854	19 271	20		9 17 640 0 17 550 0
	50	6846	479	3293	77	7211	498	.221 9595	19 259	10		19 400 19 300
			479		77		497		19 248			1 1 940 0 1 930 0
8	0	0.158 7325		0.987 3216		0.160 7708		6.220 0347		0	52	2 3 880 0 3 860 0
	10	7804	479	3139	77	8205	497	.218 1111	19 236	50		3 5 820 0 5 790 0
	20	8282	478	3062	77	8703	498	.216 1887	19 224	40		4 7 760 0 7 720 0
	30	8761	479	2985	77	9200	497	.214 2674	19 213	30		5 9 700 0 9 650 0
	40	9240	478	2908	77	9698	498	.212 3473	19 201	20		6 11 640 0 11 580 0
	50	9718	479	2831	77	0.161 0195	497	.210 4284	19 189	10		7 13 580 0 13 510 0
			479		77		497		19 178			8 15 520 0 15 440 0
9	0	0.159 0197		0.987 2754		0.161 0692		6.208 5106		0	51	9 17 460 0 17 370 0
	10	0676	479	2677	77	1190	498	.206 5939	19 167	50		19 200 19 100
	20	1154	478	2600	77	1687	497	.204 6784	19 155	40		1 1 920 0 1 910 0
	30	1633	478	2523	77	2184	497	.202 7641	19 143	30		2 3 840 0 3 820 0
	40	2111	478	2446	77	2682	498	.200 8509	19 132	20		3 5 760 0 5 730 0
	50	2590	479	2368	78	3179	497	.198 9388	19 121	10		4 7 680 0 7 640 0
			479		77		498		19 109			5 9 600 0 9 550 0
10	0	0.159 3069		0.987 2291		0.161 3677		6.197 0279		0	50	6 11 520 0 11 460 0
												7 13 440 0 13 370 0
												8 15 360 0 15 280 0
												9 17 280 0 17 190 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

80° 50' 14623

9° 10'

'	"	Sine	Diff.	Cosine	Diff.	Tangent	Diff.	Cotangent	Diff.			Proportional Parts
10	0	0.159 3069		0.987 2291		0.161 3677		6.197 0279		0	50	Sine
	10	3547	478	2214	77	4174	497	.195 1182	19 097	50		478 479
	20	4026	479	2137	77	4672	498	.193 2096	19 086	40		1 47 8 47 9
	30	4505	479	2059	78	5169	497	.191 3021	19 075	30		2 95 6 95 8
	40	4983	478	1982	77	5667	498	.189 3958	19 063	20		3 143 4 143 7
	50	5462	479	1905	77	6164	497	.187 4907	19 051	10		4 191 2 191 6
			478		78		498		19 040			5 239 0 239 5
11	0	0 159 5940		0.987 1827		0.161 6662		6.185 5867		0	49	Cosine
	10	6419	479	1750	77	7159	497	.183 6838	19 029	50		77 78 79
	20	6898	479	1673	77	7657	498	.181 7820	19 018	40		1 7 7 8 7 9
	30	7376	478	1595	78	8154	497	.179 8814	19 006	30		2 15 4 15 6 15 8
	40	7855	478	1518	77	8652	498	.177 9820	18 994	20		3 23 1 23 4 23 7
	50	8333	479	1440	78	9149	497	.176 0837	18 983	10		4 30 8 31 2 31 6
			478		77		498		18 972			5 38 5 39 0 39 5
12	0	0 159 8812		0.987 1363		0 161 9647		6.174 1865		0	48	Tangent
	10	9290	478	1285	78	0.162 0144	497	.172 2904	18 961	50		497 498
	20	9769	479	1208	77	0642	498	.170 3955	18 949	40		1 49 7 49 8
	30	0 160 0248	479	1130	78	1139	497	.168 5017	18 938	30		2 99 4 99 6
	40	0726	478	1052	77	1637	498	.166 6091	18 926	20		3 149 1 149 4
	50	1205	479	975	78	2134	497	.164 7175	18 916	10		4 198 8 199 2
			478		77		498		18 903			5 248 5 249 0
13	0	0 160 1683		0.987 0897		0 162 2632		6.162 8272		0	47	Cotangent
	10	2162	479	0819	78	3129	497	.160 9379	18 893	50		19 100 19 000
	20	2640	478	0742	77	3627	498	.159 0498	18 881	40		1 1 910 0 1 900 0
	30	3119	479	0664	78	4125	497	.157 1628	18 870	30		2 3 820 0 3 800 0
	40	3597	478	0586	77	4622	498	.155 2769	18 859	20		3 5 730 0 5 700 0
	50	4076	479	0509	78	5120	497	.153 3921	18 848	10		4 7 640 0 7 600 0
			478		77		498		18 836			5 9 550 0 9 500 0
14	0	0 160 4555		0.987 0431		0.162 5618		6 161 5085		0	46	Tangent
	10	5033	478	0353	78	6115	497	.149 6260	18 825	50		1 11 460 0 11 400 0
	20	5512	479	0275	77	6613	498	.147 7446	18 814	40		2 13 370 0 13 300 0
	30	5990	478	0197	78	7110	497	.145 8643	18 803	30		3 15 280 0 15 200 0
	40	6469	479	0119	77	7608	498	.143 9852	18 791	20		4 17 190 0 17 100 0
	50	6947	478	0042	78	8106	497	.142 1072	18 780	10		5 18 900 0 18 800 0
			479		77		498		18 769			1 1 890 0 1 880 0
15	0	0.160 7426		0.986 9964		0.162 8603		6.140 2303		0	45	Cotangent
	10	7904	478	9886	78	9101	497	.138 3545	18 758	50		2 3 780 0 3 750 0
	20	8383	479	9808	77	9599	498	.136 4798	18 747	40		3 5 670 0 5 640 0
	30	8861	478	9730	78	0 163 0096	497	.134 6062	18 736	30		4 7 560 0 7 520 0
	40	9340	479	9652	77	0594	498	.132 7338	18 724	20		5 9 450 0 9 400 0
	50	9818	478	9574	78	1092	497	.130 8625	18 713	10		6 11 340 0 11 280 0
			479		77		498		18 702			7 13 230 0 13 160 0
16	0	0 161 0297		0.986 9496		0.163 1690		6.128 9923		0	44	Tangent
	10	0775	478	9418	78	2087	497	.127 1232	18 691	50		8 15 120 0 15 040 0
	20	1254	479	9339	77	2585	498	.125 2552	18 680	40		9 17 010 0 16 920 0
	30	1732	478	9261	78	3083	497	.123 3883	18 669	30		1 1 870 0 1 860 0
	40	2211	479	9183	77	3581	498	.121 5225	18 658	20		2 3 760 0 3 720 0
	50	2689	478	9105	78	4078	497	.119 6578	18 647	10		3 5 610 0 5 580 0
			479		77		498		18 635			4 7 480 0 7 440 0
17	0	0 161 3167		0.986 9027		0.163 4676		6.117 7943		0	43	Cotangent
	10	3646	478	8949	78	5074	497	.115 9318	18 625	50		5 9 350 0 9 300 0
	20	4124	479	8870	77	5572	498	.114 0704	18 614	40		6 11 240 0 11 160 0
	30	4603	478	8792	78	6069	497	.112 2102	18 603	30		7 13 090 0 13 020 0
	40	5081	479	8714	77	6567	498	.110 3510	18 592	20		8 14 960 0 14 880 0
	50	5560	478	8636	78	7065	497	.108 4930	18 580	10		9 16 830 0 16 740 0
			479		77		498		18 570			1 1 870 0 1 860 0
18	0	0 161 6038		0.986 8557		0 163 7563		6 106 6360		0	42	Cotangent
	10	6517	478	8479	78	8061	497	.104 7802	18 558	50		2 3 740 0 3 720 0
	20	6995	479	8400	77	8558	498	.102 9254	18 548	40		3 5 610 0 5 580 0
	30	7474	478	8322	78	9056	497	.101 0718	18 536	30		4 7 480 0 7 440 0
	40	7952	479	8244	77	9554	498	.099 2192	18 526	20		5 9 350 0 9 300 0
	50	8430	478	8165	78	0.164 0052	497	.097 3677	18 515	10		6 11 220 0 11 160 0
			479		77		498		18 503			7 13 090 0 13 020 0
19	0	0 161 8909		0.986 8087		0.164 0550		6.095 5174		0	41	Tangent
	10	9387	478	8008	79	1048	497	.093 6681	18 493	50		8 14 800 0 14 720 0
	20	9866	479	7930	78	1546	498	.091 8199	18 482	40		9 16 650 0 16 560 0
	30	0.162 0344	478	7851	79	2043	497	.089 9728	18 471	30		1 1 850 0 1 840 0
	40	0822	479	7773	78	2541	498	.088 1268	18 460	20		2 3 700 0 3 680 0
	50	1301	478	7694	79	3039	497	.086 2819	18 449	10		3 5 550 0 5 520 0
			479		77		498		18 438			4 7 400 0 7 360 0
20	0	0.162 1779		0.986 7615		0.164 3537		6.084 4381		0	40	Cotangent
			478		79		497					5 9 250 0 9 200 0
							498					6 11 100 0 11 040 0
												7 12 950 0 12 880 0
												8 14 800 0 14 720 0
												9 16 650 0 16 560 0
		Cosine	Diff.	Sine	Diff.	Cotangent	Diff.	Tangent	Diff.	"	'	Proportional Parts

80° 40'

9° 20'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
20	0	0.162 1779		0.986 7615		0.164 3537		6.084 4381		0	40	Sine
	10	2258	479	7537	78	4035	498	.082 5953	18 428	50		478 479
	20	2736	478	7458	79	4533	498	.080 7537	18 416	40		1 47 8 47 9
	30	3214	478	7379	79	5031	498	.078 9131	18 406	30		2 95 6 95 8
	40	3693	479	7301	78	5529	498	.077 0737	18 394	20		3 143 4 143 7
	50	4171	478	7222	79	6027	498	.075 2353	18 384	10		4 101 2 101 6
			479		79		498		18 374			5 239 0 239 5
21	0	0 162 4650		0.986 7143		0.164 6525		6 073 3979		0	39	6 286 8 287 4
	10	5128	478	7064	79	7023	498	.071 5617	18 362	50		7 334 6 335 3
	20	5606	478	6986	78	7521	498	.069 7266	18 351	40		8 382 4 383 2
	30	6085	479	6907	79	8019	498	.067 8925	18 341	30		9 430 2 431 1
	40	6563	478	6828	79	8517	498	.066 0595	18 330	20		
	50	7041	478	6749	79	9015	498	.064 2276	18 319	10		Cosine
			479		79		498		18 309			78 79 80
22	0	0 162 7520		0 986 6670		0 164 9513		6.062 3967		0	38	1 7 8 7 9 8 0
	10	7998	478	6591	79	0 165 0011	498	.060 5670	18 297	50		2 15 6 15 8 16 0
	20	8476	478	6512	79	0 165 0509	498	.058 7383	18 287	40		3 23 4 23 7 24 0
	30	8955	479	6433	79	1007	498	.056 9107	18 276	30		4 31 2 31 6 32 0
	40	9433	478	6354	79	1505	498	.055 0841	18 266	20		5 39 0 39 5 40 0
	50	9911	478	6275	79	2003	498	.053 2587	18 254	10		6 46 8 47 4 48 0
			479		79		498		18 244			7 54 6 55 3 56 0
23	0	0 163 0390		0.986 6196		0 165 2501		6.051 4343		0	37	8 62 4 63 2 64 0
	10	0868	478	6117	79	2999	498	.049 6109	18 234	50		9 70 2 71 1 72 0
	20	1346	478	6038	79	3497	498	.047 7887	18 222	40		
	30	1825	479	5959	79	3995	498	.045 9675	18 212	30		Tangent
	40	2303	478	5880	79	4493	498	.044 1474	18 201	20		498 499
	50	2781	478	5801	79	4991	498	.042 3283	18 191	10		1 49 8 49 9
			479		79		498		18 180			2 99 6 99 8
24	0	0.163 3260		0.986 5722		0 165 5489		6 040 5103		0	36	3 149 4 149 7
	10	3738	478	5642	80	5987	498	.038 6934	18 169	50		4 199 2 199 6
	20	4216	478	5563	79	6485	498	.036 8775	18 159	40		5 249 0 249 5
	30	4695	479	5484	79	6984	499	.035 0627	18 148	30		6 298 8 299 4
	40	5173	478	5405	79	7482	498	.033 2490	18 137	20		7 348 6 349 3
	50	5651	478	5325	80	7980	498	.031 4363	18 127	10		8 398 4 399 2
			479		79		498		18 116			9 448 2 449 1
25	0	0 163 6129		0.986 5246		0.165 8478		6 029 6247		0	35	Cotangent
	10	6608	479	5167	79	8976	498	.027 8141	18 106	50		18 400 18 300
	20	7086	478	5087	80	9474	498	.026 0046	18 095	40		1 1 840 0 1 830 0
	30	7564	478	5008	79	9972	498	.024 1962	18 084	30		2 3 680 0 3 660 0
	40	8042	478	4929	79	0.166 0471	499	.022 3888	18 074	20		3 5 520 0 5 490 0
	50	8521	479	4849	80	0969	498	.020 5825	18 063	10		4 7 360 0 7 320 0
			478		79		498		18 053			5 9 200 0 9 150 0
26	0	0 163 8999		0 986 4770		0 166 1467		6 018 7772		0	34	6 11 040 0 10 980 0
	10	9477	478	4690	80	1965	498	.016 9730	18 042	50		7 12 880 0 12 810 0
	20	9955	478	4611	79	2463	498	.015 1698	18 032	40		8 14 720 0 14 640 0
	30	0 164 0434	479	4531	80	2962	499	.013 3677	18 021	30		9 16 560 0 16 470 0
	40	0912	478	4452	79	3460	498	.011 5666	18 011	20		18 200 18 100
	50	1390	478	4372	80	3958	498	.009 7666	18 000	10		1 1 820 0 1 810 0
			479		79		498		17 990			2 3 640 0 3 620 0
27	0	0 164 1868		0 986 4293		0 166 4456		6 007 9676		0	33	3 5 160 0 5 430 0
	10	2347	479	4213	80	4955	499	.006 1697	17 979	50		4 7 280 0 7 240 0
	20	2825	478	4133	79	5453	498	.004 3728	17 969	40		5 9 100 0 9 050 0
	30	3303	478	4054	79	5951	498	.002 5770	17 959	30		6 10 920 0 10 860 0
	40	3781	478	3974	80	6449	498	.000 7822	17 948	20		7 12 740 0 12 670 0
	50	4260	479	3894	80	6948	499	.998 9884	17 938	10		8 14 560 0 14 480 0
			478		79		498		17 927			9 16 380 0 16 290 0
28	0	0.164 4738		0.986 3815		0.166 7446		5.997 1957		0	32	18 000 17 900
	10	5216	478	3735	80	7944	498	.995 4041	17 916	50		1 1 800 0 1 790 0
	20	5694	478	3655	80	8443	499	.993 6135	17 906	40		2 3 600 0 3 580 0
	30	6172	478	3575	80	8941	498	.991 8239	17 896	30		3 5 400 0 5 370 0
	40	6651	479	3495	80	9439	498	.990 0354	17 885	20		4 7 200 0 7 160 0
	50	7129	478	3416	80	9938	499	.988 2479	17 875	10		5 9 000 0 8 950 0
			479		79		498		17 865			6 10 800 0 10 740 0
29	0	0 164 7607		0.986 3336		0.167 0436		5 986 4614		0	31	7 12 600 0 12 530 0
	10	8085	478	3256	80	0934	498	.984 6760	17 854	50		8 14 400 0 14 320 0
	20	8563	478	3176	80	1433	499	.982 8916	17 844	40		9 16 200 0 16 110 0
	30	9042	479	3096	80	1931	498	.981 1082	17 834	30		17 800
	40	9520	478	3016	80	2429	498	.979 3259	17 823	20		1 1 780 0
	50	9998	478	2936	80	2928	499	.977 5446	17 813	10		2 3 560 0
			479		79		498		17 802			3 5 340 0
30	0	0 165 0476		0 986 2856		0 167 3426		5.975 7644		0	30	4 7 120 0
												5 8 900 0
												6 10 680 0
												7 12 460 0
												8 14 240 0
												9 16 020 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff			Proportional Parts

80° 30'

9° 30'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
30	0	0.165 0476		0.986 2856		0.167 3426		5.975 7644		0	30	Sine
	10	0954	478	2776	80	3924	498	.973 9851	17 793	50		477 478 479
	20	1432	478	2696	80	4423	499	.972 2069	17 782	40		1 47 7 47 8 47 9
	30	1911	479	2616	80	4921	498	.970 4298	17 771	30		2 95 4 95 6 95 8
	40	2389	478	2536	80	5420	499	.968 6536	17 762	20		3 143 1 143 4 143 7
	50	2867	478	2456	80	5918	498	.966 8785	17 751	10		4 190 8 191 2 191 6
			478		81		499		17 740			5 238 5 239 0 239 5
31	0	0.165 3345		0.986 2375		0.167 6417		5.965 1045		0	29	Cosine
	10	3823	478	2295	80	6915	498	.963 3314	17 731	50		1 8 0 8 1 8 2
	20	4301	478	2215	80	7413	498	.961 5594	17 720	40		2 16 0 16 2 16 4
	30	4779	478	2135	80	7912	499	.959 7884	17 710	30		3 24 0 24 3 24 6
	40	5258	479	2055	81	8410	498	.958 0184	17 700	20		4 32 0 32 4 32 8
	50	5736	478	1974	80	8909	499	.956 2494	17 690	10		5 40 0 40 5 41 0
			478		80		498		17 679			6 48 0 48 6 49 2
32	0	0.165 6214		0.986 1894		0.167 9407		5.954 4816		0	28	Tangent
	10	6692	478	1814	80	9906	499	.952 7146	17 669	50		1 49 8 49 9
	20	7170	478	1734	80	1.068 0404	498	.950 9487	17 659	40		2 99 6 99 8
	30	7648	478	1653	80	0903	499	.949 1838	17 649	30		3 149 4 149 7
	40	8126	478	1573	80	1401	498	.947 4199	17 639	20		4 199 2 199 6
	50	8604	478	1492	80	1900	499	.945 6571	17 628	10		5 249 0 249 5
			478		80		498		17 619			6 298 8 299 4
33	0	0.165 9082		0.986 1412		0.168 2398		5.943 8952		0	27	Cotangent
	10	9560	478	1332	80	2897	499	.942 1344	17 608	50		1 498 499
	20	0.166 0039	479	1251	81	3396	499	.940 3746	17 598	40		2 99 6 99 8
	30	0517	478	1171	80	3894	498	.938 6158	17 588	30		3 149 4 149 7
	40	0995	478	1090	80	4393	499	.936 8581	17 577	20		4 199 2 199 6
	50	1473	478	1009	80	4891	498	.935 1013	17 568	10		5 249 0 249 5
			478		80		499		17 558			6 298 8 299 4
34	0	0.166 1951		0.986 0929		0.168 5390		5.933 3455		0	26	Tangent
	10	2429	478	0848	80	5888	498	.931 5908	17 547	50		1 498 499
	20	2907	478	0768	80	6387	499	.929 8371	17 537	40		2 99 6 99 8
	30	3385	478	0687	81	6886	499	.928 0843	17 528	30		3 149 4 149 7
	40	3863	478	0606	80	7384	498	.926 3326	17 517	20		4 199 2 199 6
	50	4341	478	0526	80	7883	499	.924 5819	17 507	10		5 249 0 249 5
			478		81		498		17 497			6 298 8 299 4
35	0	0.166 4819		0.986 0445		0.168 8381		5.922 8322		0	25	Cotangent
	10	5297	478	0364	81	8880	499	.921 0835	17 487	50		1 1780 0 1770 0
	20	5775	478	0284	80	9379	499	.919 3358	17 477	40		2 3560 0 3540 0
	30	6253	478	0203	81	9877	498	.917 5891	17 467	30		3 5340 0 5310 0
	40	6731	478	0122	80	0.169 0376	499	.915 8434	17 457	20		4 7120 0 7080 0
	50	7209	478	0041	81	0875	498	.914 0987	17 447	10		5 8900 0 8850 0
			478		81		499		17 437			6 10680 0 10620 0
36	0	0.166 7687		0.985 9960		0.169 1373		5.912 3550		0	24	Tangent
	10	8165	478	9880	80	1872	499	.910 6123	17 427	50		7 12460 0 12390 0
	20	8644	479	9799	81	2371	499	.908 8706	17 417	40		8 14240 0 14160 0
	30	9122	478	9718	80	2869	498	.907 1299	17 407	30		9 16020 0 15930 0
	40	9600	478	9637	81	3368	499	.905 3902	17 397	20		1 1760 0 1750 0
	50	0.167 0078	478	9556	81	3867	499	.903 6515	17 387	10		2 3520 0 3500 0
			478		81		498		17 377			3 5280 0 5250 0
37	0	0.167 0556		0.985 9475		0.169 4366		5.901 9138		0	23	Cotangent
	10	1034	478	9394	81	4864	499	.900 1771	17 367	50		4 7040 0 7000 0
	20	1512	478	9313	81	5363	499	.898 4414	17 357	40		5 8800 0 8750 0
	30	1990	478	9232	81	5862	499	.896 7067	17 347	30		6 10560 0 10500 0
	40	2468	478	9151	81	6361	499	.894 9729	17 338	20		7 12320 0 12250 0
	50	2945	477	9070	81	6859	498	.893 2402	17 327	10		8 14080 0 14000 0
			478		82		499		17 318			9 15840 0 15750 0
38	0	0.167 3423		0.985 8988		0.169 7358		5.891 5084		0	22	Tangent
	10	3901	478	8907	81	7857	499	.889 7776	17 308	50		1 1740 0 1730 0
	20	4379	478	8826	81	8356	499	.888 0479	17 297	40		2 3480 0 3460 0
	30	4857	478	8745	81	8855	499	.886 3191	17 288	30		3 5220 0 5190 0
	40	5335	478	8664	81	9353	498	.884 5913	17 278	20		4 6960 0 6920 0
	50	5813	478	8583	82	9852	499	.882 8644	17 269	10		5 8700 0 8650 0
			478		82		498		17 258			6 10440 0 10380 0
39	0	0.167 6291		0.985 8501		0.170 0351		5.881 1386		0	21	Cotangent
	10	6769	478	8420	81	0850	499	.879 4137	17 249	50		7 12180 0 12110 0
	20	7247	478	8339	81	1349	499	.877 6899	17 238	40		8 13920 0 13840 0
	30	7725	478	8257	82	1848	499	.875 9670	17 229	30		9 15660 0 15570 0
	40	8203	478	8176	81	2346	498	.874 2451	17 219	20		1 1720 0
	50	8681	478	8095	81	2845	499	.872 5242	17 209	10		2 3440 0
			478		82		498		17 200			3 5160 0
40	0	0.167 9159		0.985 8013		0.170 3344		5.870 8042		0	20	Tangent
												4 6880 0
												5 8600 0
												6 10320 0
												7 12040 0
												8 13760 0
												9 15480 0
												Proportional Parts
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff			

80° 20'

9° 40'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
40	0	0.167 9169	478	0.985 8013	81	0.170 3344	499	5.870 8042	17 190	0	20	Sine
	10	9637	478	7932	82	3843	499	869 0852	17 180	50		477 478
	20	0.168 0115	478	7850	81	4342	499	867 3672	17 170	40		1 47 7 47 8
	30	0593	478	7769	82	4841	499	865 6502	17 160	30		2 95 4 95 6
	40	1071	478	7687	81	5340	499	863 9342	17 151	20		3 113 1 143 4
	50	1549	477	7606	82	5839	499	862 2191	17 140	10		4 190 8 191 2
41	0	0 168 2026	478	0.985 7524	81	0.170 6338	499	5.860 5051	17 132	0	19	5 238 5 239 0
	10	2504	478	7443	82	6837	498	858 7919	17 121	50		6 286 2 286 8
	20	2982	478	7361	81	7335	499	857 0798	17 112	40		7 333 9 334 6
	30	3460	478	7280	82	7834	499	855 3686	17 102	30		8 381 6 382 4
	40	3938	478	7198	82	8333	499	853 6584	17 092	20		9 429 3 430 2
	50	4416	478	7116	81	8832	499	851 9492	17 082	10		Cosine
42	0	0 168 4894	478	0.985 7035	82	0 170 9331	499	5.850 2410	17 073	0	18	81 82 83
	10	5372	478	6953	82	9830	499	848 5337	17 064	50		1 8 1 8 2 8 3
	20	5850	477	6871	81	0 171 0329	499	846 8273	17 054	40		2 16 2 16 4 16 6
	30	6327	478	6790	82	0828	499	845 1220	17 044	30		3 24 3 24 6 24 9
	40	6805	478	6708	82	1327	499	843 4176	17 034	20		4 32 4 32 8 33 2
	50	7283	478	6626	82	1826	499	841 7142	17 025	10		5 40 5 41 0 41 5
43	0	0.168 7761	478	0.985 6544	82	0.171 2325	499	5.840 0117	17 015	0	17	6 48 6 49 2 49 8
	10	8239	478	6462	82	2824	499	838 3102	17 005	50		7 56 7 57 4 58 1
	20	8717	478	6380	81	3323	499	836 6097	16 996	40		8 64 8 65 6 66 4
	30	9195	478	6299	82	3822	500	834 9101	16 986	30		9 72 9 73 8 74 7
	40	9672	477	6217	82	4322	499	833 2115	16 976	20		Tangent
	50	0 169 0150	478	6135	82	4821	499	831 5139	16 967	10		498 499 500
44	0	0 169 0628	478	0 985 6053	82	0.171 5320	499	5 829 8172	16 957	0	16	1 49 8 49 9 50 0
	10	1106	478	5971	82	5819	499	828 1215	16 948	50		2 99 6 99 8 100 0
	20	1584	478	5889	82	6318	499	826 4267	16 938	40		3 149 4 149 7 150 0
	30	2062	478	5807	82	6817	499	824 7329	16 929	30		4 199 2 199 6 200 0
	40	2539	477	5725	82	7316	499	823 0400	16 919	20		5 249 0 249 5 250 0
	50	3017	478	5643	82	7815	499	821 3481	16 909	10		6 298 8 299 4 300 0
45	0	0 169 3495	478	0 985 5561	83	0.171 8314	499	5 819 6572	16 899	0	15	7 318 6 319 3 350 0
	10	3973	478	5478	82	8813	500	817 9672	16 889	50		8 398 1 399 2 400 0
	20	4451	477	5396	82	9313	499	816 2782	16 880	40		9 448 2 449 1 450 0
	30	4928	478	5314	82	9812	499	814 5901	16 871	30		Cotangent
	40	5406	478	5232	82	0.172 0311	499	812 9029	16 861	20		17 200 17 100
	50	5884	478	5150	82	0810	499	811 2168	16 853	10		1 1 720 0 1 710 0
46	0	0 169 6362	478	0 985 5068	83	0 172 1309	499	5.809 5315	16 843	0	14	2 3 440 0 3 420 0
	10	6840	477	4985	82	1808	500	807 8472	16 833	50		3 5 160 0 5 130 0
	20	7317	478	4903	82	2308	499	806 1639	16 824	40		4 6 880 0 6 840 0
	30	7795	478	4821	82	2807	499	804 4815	16 814	30		5 8 600 0 8 550 0
	40	8273	478	4738	83	3306	499	802 8001	16 805	20		6 10 320 0 10 260 0
	50	8751	477	4656	82	3805	499	801 1196	16 796	10		7 12 040 0 11 970 0
47	0	0 169 9228	478	0.985 4574	83	0.172 4304	500	5.799 4400	16 786	0	13	8 13 760 0 13 680 0
	10	9706	478	4491	82	4804	499	797 7614	16 776	50		9 15 480 0 15 390 0
	20	0.170 0184	478	4409	82	5303	499	796 0838	16 766	40		17 000 16 900
	30	0662	478	4326	82	5802	499	794 4070	16 757	30		1 1 700 0 1 690 0
	40	1140	477	4244	83	6301	500	792 7313	16 749	20		2 3 400 0 3 380 0
	50	1617	478	4161	82	6801	499	791 0564	16 739	10		3 5 100 0 5 070 0
48	0	0.170 2095	478	0.985 4079	83	0.172 7300	499	5.789 3825	16 729	0	12	4 6 800 0 6 760 0
	10	2573	477	3996	82	7799	500	787 7096	16 720	50		5 8 500 0 8 450 0
	20	3050	478	3914	83	8299	499	786 0375	16 711	40		6 10 200 0 10 140 0
	30	3528	478	3831	82	8798	499	784 3665	16 702	30		7 11 900 0 11 830 0
	40	4006	478	3749	82	9297	499	782 6963	16 692	20		8 13 600 0 13 520 0
	50	4484	477	3666	83	9796	500	781 0271	16 683	10		9 15 300 0 15 210 0
49	0	0.170 4961	478	0 985 3583	82	0 173 0296	499	5 779 3588	16 673	0	11	16 800 16 700
	10	5439	478	3501	83	0795	499	777 6915	16 664	50		1 1 680 0 1 670 0
	20	5917	477	3418	83	1294	500	776 0251	16 655	40		2 3 360 0 3 340 0
	30	6394	478	3335	82	1794	499	774 3596	16 646	30		3 5 040 0 5 010 0
	40	6872	478	3253	83	2293	499	772 6951	16 636	20		4 6 720 0 6 680 0
	50	7350	478	3170	83	2792	500	771 0315	16 627	10		5 8 400 0 8 350 0
50	0	0.170 7828		0.985 3087		0.173 3292		5.769 3688		0	10	6 10 080 0 10 020 0
												7 11 760 0 11 690 0
												8 13 440 0 13 360 0
												9 15 120 0 15 030 0
												16 600
												1 1 660 0
												2 3 320 0
												3 4 980 0
												4 6 640 0
												5 8 300 0
												6 9 960 0
												7 11 620 0
												8 13 280 0
												9 14 940 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff.			Proportional Parts

80° 10'

9° 50'

'	"	Sine	Diff.	Cosine	Diff.	Tangent	Diff.	Cotangent	Diff.			Proportional Parts
50	0	0.170 7828		0.985 3087		0.173 3292		5.769 3688		0	10	
	10	8305	477	3004	83	3791	499	.767 7070	16 618	50		Sine
	20	8783	478	2921	83	4291	500	.766 0462	16 608	40		477 478
	30	9261	478	2839	82	4790	499	.764 3863	16 599	30		1 47 7 47 8
	40	9738	477	2756	83	5289	499	.762 7274	16 589	20		2 95 4 95 6
	50	0.171 0216	478	2673	83	5789	500	.761 0693	16 581	10		3 143 1 143 4
			478		83		499		16 571			4 190 8 191 2
51	0	0.171 0694		0.985 2690		0.173 6288		5.769 4122		0	9	
	10	1171	477	2507	83	6788	500	.757 7560	16 562	50		5 238 5 239 0
	20	1649	478	2424	83	7287	499	.756 1008	16 552	40		6 286 2 286 8
	30	2127	478	2341	83	7787	500	.754 4464	16 544	30		7 333 9 334 6
	40	2604	477	2258	83	8286	499	.752 7930	16 534	20		8 381 6 382 4
	50	3082	478	2175	83	8786	500	.751 1405	16 525	10		9 429 3 430 2
			478		83		499		16 516			
52	0	0.171 3560		0.985 2092		0.173 9285		5.749 4889		0	8	
	10	4037	477	2009	83	9785	500	.747 8383	16 506	50		Cosine
	20	4515	478	1926	83	0.174 0284	499	.746 1886	16 497	40		82 83 84
	30	4992	477	1843	83	0784	500	.744 5397	16 489	30		1 8 2 8 3 8 4
	40	5470	478	1759	84	1283	499	.742 8918	16 479	20		2 16 4 16 6 16 8
	50	5948	478	1676	83	1783	500	.741 2449	16 469	10		3 21 6 21 0 25 2
			477		83		499		16 461			4 32 8 33 2 33 6
53	0	0.171 6425		0.985 1593		0.174 2282		5.739 5988		0	7	
	10	6903	478	1510	83	2782	500	.737 9537	16 451	50		5 41 0 41 5 42 0
	20	7381	478	1426	84	3281	499	.736 3094	16 443	40		6 49 2 49 8 50 4
	30	7858	477	1343	83	3781	500	.734 6661	16 433	30		7 57 4 58 1 58 8
	40	8336	478	1260	83	4280	499	.733 0237	16 424	20		8 65 6 66 4 67 2
	50	8813	477	1177	84	4780	500	.731 3822	16 415	10		9 73 8 74 7 75 6
			478		84		499		16 406			
54	0	0.171 9291		0.985 1093		0.174 5279		5.729 7416		0	6	
	10	9769	478	1010	83	5779	500	.728 1020	16 396	50		Tangent
	20	0 172 0246	477	0927	83	6279	500	.726 4632	16 388	40		499 500
	30	0724	478	0843	84	6778	499	.724 8254	16 378	30		1 49 9 50 0
	40	1201	477	0760	83	7278	500	.723 1884	16 370	20		2 99 8 100 0
	50	1679	478	0676	84	7777	499	.721 5524	16 360	10		3 149 7 150 0
			477		83		500		16 351			4 199 6 200 0
55	0	0 172 2166		0.985 0593		0.174 8277		5.719 9173		0	5	
	10	2634	478	0509	84	8777	500	.718 2831	16 342	50		5 249 5 250 0
	20	3112	478	0426	83	9276	499	.716 6498	16 333	40		6 299 1 300 0
	30	3589	477	0342	84	9776	500	.715 0174	16 324	30		7 349 3 350 0
	40	4067	478	0259	83	0.175 0276	499	.713 3859	16 315	20		8 399 2 400 0
	50	4544	477	0175	84	0775	500	.711 7553	16 306	10		9 449 1 450 0
			478		84				16 297			
56	0	0 172 5022		0.985 0091		0.175 1275		5.710 1266		0	4	
	10	5499	478	0008	83	1775	500	.708 4968	16 288	50		Cotangent
	20	5977	477	0924	84	2274	499	.706 8689	16 279	40		16 600 16 500
	30	6454	478	0840	84	2774	500	.705 2419	16 270	30		1 1 660 0 1 650 0
	40	6932	478	0757	83	3274	499	.703 6158	16 261	20		2 3 320 0 3 300 0
	50	7410	477	0673	84	3773	500	.701 9906	16 252	10		3 4 980 0 4 950 0
			478		84				16 243			4 6 610 0 6 600 0
57	0	0 172 7887		0.984 9589		0.175 4273		5.700 3663		0	3	
	10	8365	478	9505	83	4773	500	.698 7429	16 234	50		5 8 300 0 8 250 0
	20	8842	477	9422	84	5273	499	.697 1204	16 225	40		6 9 960 0 9 900 0
	30	9320	478	9338	84	5772	500	.695 4988	16 216	30		7 11 620 0 11 550 0
	40	9797	477	9254	84	6272	499	.693 8781	16 207	20		8 13 280 0 13 200 0
	50	0 173 0275	478	9170	84	6772	500	.692 2583	16 198	10		9 14 940 0 14 850 0
			477		84				16 189			
58	0	0 173 0752		0.984 9086		0.175 7272		5.690 6394		0	2	
	10	1230	478	9002	84	7772	500	.689 0214	16 180	50		16 400 16 300
	20	1707	477	8918	84	8271	499	.687 4042	16 172	40		1 1 640 0 1 630 0
	30	2185	478	8834	84	8771	500	.685 7880	16 162	30		2 3 280 0 3 260 0
	40	2662	477	8750	84	9271	499	.684 1726	16 154	20		3 4 920 0 4 890 0
	50	3140	478	8666	84	9771	500	.682 5582	16 144	10		4 6 560 0 6 520 0
			477		84				16 136			5 8 200 0 8 150 0
59	0	0 173 3617		0.984 8582		0.176 0271		5.680 9446		0	1	
	10	4094	477	8498	84	0770	499	.679 3319	16 127	50		6 9 840 0 9 780 0
	20	4572	478	8414	84	1270	500	.677 7201	16 118	40		7 11 480 0 11 410 0
	30	5049	477	8330	84	1770	499	.676 1092	16 109	30		8 13 120 0 13 040 0
	40	5527	478	8246	84	2270	500	.674 4992	16 100	20		9 14 760 0 14 670 0
	50	6004	477	8162	84	2770	500	.672 8901	16 091	10		16 200 16 100
			478		84				16 083			1 1 620 0 1 610 0
60	0	0 173 6482		0.984 8078		0.176 3270		5.671 2818		0	00	
												2 3 240 0 3 220 0
												3 4 860 0 4 830 0
												4 6 480 0 6 440 0
												5 8 100 0 8 050 0
												6 9 720 0 9 660 0
												7 11 340 0 11 270 0
												8 12 960 0 12 880 0
												9 14 580 0 14 490 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

80° 00'

10° 0'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
0	0	0.173 6482		0.984 8078		0.176 3270		5.871 2818		0	60	Sine
	10	6959	477	7993	85	3770	500	.669 6745	16 073	50		477 478
	20	7437	477	7909	84	4270	500	.668 0680	16 065	40		1 47 7 47 8
	30	7914	477	7825	84	4770	500	.666 4624	16 056	30		2 95 4 95 6
	40	8392	478	7741	84	5269	499	.664 8576	16 048	20		3 143 1 143 4
	50	8869	477	7656	85	5769	500	.663 2538	16 038	10		4 190 8 191 2
			477		84		500		16 029			5 238 5 239 0
1	0	0.173 9346		0.984 7672		0.176 6269		5.661 6509		0	59	Sine
	10	9824	478	7488	84	6769	500	.660 0488	16 021	50		6 286 2 286 8
	20	0.174 0301	477	7403	85	7269	500	.658 4476	16 012	40		7 333 9 334 6
	30	0779	478	7319	84	7769	500	.656 8473	16 003	30		8 381 6 382 4
	40	1256	477	7235	85	8269	500	.655 2478	15 995	20		9 429 3 430 2
	50	1733	478	7150	84	8769	500	.653 6493	15 985	10		
			478		84		500		15 977			Cosine
2	0	0.174 2211		0.984 7066		0.176 9269		5.652 0616		0	58	84 85 86
	10	2688	477	6981	85	9769	500	.650 4547	15 969	50		1 8 4 8 5 8 6
	20	3166	478	6897	84	0.177 0269	500	.648 8588	15 959	40		2 16 8 17 0 17 2
	30	3643	477	6812	85	0769	500	.647 2637	15 951	30		3 25 2 25 5 25 8
	40	4120	478	6728	84	1269	500	.645 6695	15 942	20		4 33 6 34 0 34 4
	50	4598	477	6643	85	1769	500	.644 0762	15 933	10		5 12 0 42 5 43 0
			477		85		500		15 924			6 50 4 51 0 51 6
3	0	0.174 5075		0.984 6558		0.177 2263		5.642 4838		0	57	7 58 8 59 5 60 2
	10	5553	478	6474	84	2769	500	.640 8922	15 916	50		8 67 2 68 0 68 8
	20	6030	477	6389	85	3269	500	.639 3015	15 907	40		9 75 6 76 5 77 4
	30	6507	478	6304	84	3769	500	.637 7117	15 898	30		
	40	6985	477	6220	85	4269	500	.636 1227	15 890	20		Tangent
	50	7462	478	6135	84	4769	501	.634 5346	15 881	10		499 500 501
			477		85				15 872			1 49 9 50 0 50 1
4	0	0.174 7939		0.984 6050		0.177 5270		5.632 9474		0	56	2 99 8 100 0 100 2
	10	8417	478	5966	84	5770	500	.631 3610	15 864	50		3 149 7 150 0 150 3
	20	8894	477	5881	85	6270	500	.629 7755	15 855	40		4 199 6 200 0 200 4
	30	9371	478	5796	84	6770	500	.628 1909	15 846	30		5 249 5 250 0 250 5
	40	9849	477	5711	85	7270	500	.626 6071	15 838	20		6 299 4 300 0 300 6
	50	0.175 0326	478	5626	84	7770	500	.625 0242	15 829	10		7 349 3 350 0 350 7
			477		84		500		15 821			8 399 2 400 0 400 8
5	0	0.175 0803		0.984 5542		0.177 8270		5.623 4421		0	55	9 449 1 450 0 450 9
	10	1281	478	5457	85	8770	500	.621 8610	15 811	50		
	20	1758	477	5372	84	9271	501	.620 2806	15 804	40		Cotangent
	30	2235	478	5287	85	9771	500	.618 7012	15 794	30		16 100 16 000
	40	2713	477	5202	84	0.178 0271	500	.617 1226	15 786	20		1 1 610 0 1 600 0
	50	3190	478	5117	85	0771	500	.615 5448	15 778	10		2 3 220 0 3 200 0
			477		85		500		15 768			3 4 830 0 4 800 0
6	0	0.175 3667		0.984 5032		0.178 1271		5.613 9680		0	54	4 6 440 0 6 400 0
	10	4145	478	4947	84	1772	501	.612 3919	15 761	50		5 8 050 0 8 000 0
	20	4622	477	4862	85	2272	500	.610 8168	15 751	40		6 9 660 0 9 600 0
	30	5099	478	4777	84	2772	500	.609 2425	15 743	30		7 11 270 0 11 200 0
	40	5576	477	4692	85	3272	500	.607 6690	15 735	20		8 12 880 0 12 800 0
	50	6054	478	4606	84	3772	501	.606 0964	15 726	10		9 14 490 0 14 400 0
			477		85				15 717			15 900 15 800
7	0	0.175 6531		0.984 4521		0.178 4273		5.604 5247		0	53	1 1 590 0 1 580 0
	10	7008	478	4436	84	4773	500	.602 9538	15 709	50		2 3 180 0 3 160 0
	20	7486	477	4351	85	5273	500	.601 3837	15 701	40		3 4 830 0 4 800 0
	30	7963	478	4266	84	5773	500	.599 8146	15 693	30		4 6 440 0 6 400 0
	40	8440	477	4180	85	6274	501	.598 2462	15 684	20		5 7 950 0 7 900 0
	50	8917	478	4095	84	6774	500	.596 6788	15 674	10		6 9 540 0 9 480 0
			477		85		500		15 667			7 11 130 0 11 060 0
8	0	0.175 9395		0.984 4010		0.178 7274		5.595 1121		0	52	8 12 720 0 12 640 0
	10	9872	477	3925	84	7775	501	.593 5463	15 658	50		9 14 310 0 14 220 0
	20	0.176 0349	478	3839	85	8275	500	.591 9814	15 649	40		15 700 15 600
	30	0826	477	3754	84	8775	500	.590 4173	15 641	30		1 1 570 0 1 560 0
	40	1304	478	3669	85	9276	501	.588 8541	15 632	20		2 3 140 0 3 120 0
	50	1781	477	3583	84	9776	500	.587 2917	15 624	10		3 4 710 0 4 680 0
			478		85		500		15 615			4 6 280 0 6 240 0
9	0	0.176 2258		0.984 3498		0.179 0276		5.585 7302		0	51	5 7 850 0 7 800 0
	10	2735	477	3412	84	0777	501	.584 1695	15 607	50		6 9 420 0 9 360 0
	20	3212	478	3327	85	1277	500	.582 6096	15 599	40		7 10 900 0 10 920 0
	30	3690	477	3241	84	1777	501	.581 0506	15 590	30		8 12 560 0 12 480 0
	40	4167	478	3156	85	2278	500	.579 4924	15 582	20		9 14 130 0 14 040 0
	50	4644	477	3070	84	2778	501	.577 9351	15 573	10		
			478		85				15 565			15 500
10	0	0.176 5121		0.984 2985		0.179 3279		5.576 3786		0	50	1 1 550 0
												2 3 100 0
												3 4 650 0
												4 6 200 0
												5 7 750 0
												6 9 300 0
												7 10 850 0
												8 12 400 0
												9 13 950 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

79° 50'

10° 10'

	'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
10	0	0 176 5121			0.984 2985		0.179 3279		5.576 3786		0	50	
	10	5598	477		2899	86	3779	500	.574 8230	15 556	50		
	20	6076	477		2813	86	4279	500	.573 2682	15 548	40		
	30	6553	477		2728	85	4780	501	.571 7143	15 539	30		
	40	7030	477		2642	86	5280	500	.570 1611	15 532	20		
	50	7507	477		2556	86	5781	501	.568 6089	15 522	10		
			477			85		500		15 515			
11	0	0.176 7984			0.984 2471		0.179 6281		5.567 0574		0	49	
	10	8462	478		2385	86	6782	501	.565 5068	15 506	50		
	20	8939	477		2299	86	7282	500	.563 9571	15 497	40		
	30	9416	477		2214	85	7783	501	.562 4081	15 490	30		
	40	9893	477		2128	86	8283	500	.560 8600	15 481	20		
	50	0.177 0370	477		2042	86	8783	500	.559 3128	15 472	10		
			477			86		501		15 465			
12	0	0.177 0847			0.984 1956		0.179 9284		5 557 7663		0	48	
	10	1325	478		1870	86	9785	501	.556 2207	15 456	50		
	20	1802	477		1784	86		500	.554 6760	15 447	40		
	30	2279	477		1698	86	0786	501	.553 1320	15 440	30		
	40	2756	477		1612	86	1286	500	.551 5889	15 431	20		
	50	3233	477		1527	85	1787	501	.550 0467	15 422	10		
			477			86		500		15 415			
13	0	0.177 3710			0.984 1441		0.180 2287		5.548 5052		0	47	
	10	4187	477		1355	86	2788	501	.546 9646	15 406	50		
	20	4664	477		1269	86	3288	500	.545 4248	15 398	40		
	30	5142	478		1182	87	3789	501	.543 8859	15 389	30		
	40	5619	477		1096	86	4290	501	.542 3478	15 381	20		
	50	6096	477		1010	86	4790	500	.540 8105	15 373	10		
			477			86		501		15 365			
14	0	0.177 6573			0.984 0924		0.180 5291		5.539 2740		0	46	
	10	7050	477		0838	86	5791	500	.537 7383	15 357	50		
	20	7527	477		0752	86	6292	501	.536 2035	15 348	40		
	30	8004	477		0666	86	6793	501	.534 6695	15 340	30		
	40	8481	477		0579	87	7293	500	.533 1363	15 332	20		
	50	8958	477		0493	86	7794	501	.531 6040	15 323	10		
			477			86		501		15 316			
15	0	0.177 9435			0.984 0407		0.180 8295		5 530 0724		0	45	
	10	9913	478		0321	86	8795	500	.528 5417	15 307	50		
	20	0.178 0390	477		0234	87	9296	501	.527 0118	15 299	40		
	30	0867	477		0148	86	9797	501	.525 4828	15 290	30		
	40	1344	477		0062	86	0.181 0297	500	.523 9545	15 283	20		
	50	1821	477		0.983 9975	87	0798	501	.522 4271	15 274	10		
			477			86		501		15 266			
16	0	0.178 2298			0.983 9889		0.181 1299		5.520 9005		0	44	
	10	2775	477		9803	86	1799	500	.519 3747	15 258	50		
	20	3252	477		9716	87	2300	501	.517 8497	15 250	40		
	30	3729	477		9630	86	2801	501	.516 3255	15 242	30		
	40	4206	477		9543	87	3302	501	.514 8021	15 234	20		
	50	4683	477		9457	86	3802	500	.513 2796	15 225	10		
			477			87		501		15 217			
17	0	0.178 5160			0.983 9370		0.181 4303		5 511 7579		0	43	
	10	5637	477		9284	86	4804	501	.510 2370	15 209	50		
	20	6114	477		9197	87	5305	501	.508 7169	15 201	40		
	30	6591	477		9110	87	5806	501	.507 1976	15 193	30		
	40	7068	477		9024	86	6306	500	.505 6791	15 185	20		
	50	7545	477		8937	87	6807	501	.504 1614	15 177	10		
			477			87		501		15 168			
18	0	0.178 8022			0.983 8850		0.181 7308		5.502 6446		0	42	
	10	8499	477		8764	86	7809	501	.501 1285	15 161	50		
	20	8976	477		8677	87	8310	501	.499 6133	15 152	40		
	30	9453	477		8590	87	8811	501	.498 0988	15 145	30		
	40	9930	477		8503	87	9311	500	.496 5852	15 136	20		
	50	0.179 0407	477		8417	86	9812	501	.495 0724	15 128	10		
			477			87		501		15 120			
19	0	0.179 0884			0.983 8330		0.182 0313		5.493 5604		0	41	
	10	1361	477		8243	87	0814	501	.492 0492	15 112	50		
	20	1838	477		8156	87	1315	501	.490 5388	15 104	40		
	30	2315	477		8069	87	1816	501	.489 0292	15 096	30		
	40	2792	477		7982	87	2317	501	.487 5204	15 088	20		
	50	3269	477		7895	87	2818	501	.486 0124	15 080	10		
			477			87		501		15 072			
20	0	0.179 3746			0.983 7808		0.182 3319		5.484 5052		0	40	
			Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

79° 40'

10° 20'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
20	0	0.179 3746		0.983 7808		0.182 3319		5.484 5052		0	40	
	10	4223	477	7722	86	3819	500	.482 9988	15 064	50		Sine
	20	4700	477	7635	87	4320	501	481 4932	15 056	40		476 477
	30	5177	477	7547	88	4821	501	.479 9884	15 048	30		1 47 6 47 7
	40	5654	477	7460	87	5322	501	.478 4844	15 040	20		2 45 2 95 4
	50	6131	477	7373	87	5823	501	.476 9812	15 032	10		3 142 8 143 1
			476		87				15 024			4 190 1 190 8
21	0	0.179 6607		0.983 7286		0.182 6324		5.475 4788		0	39	
	10	7084	477	7199	87	6825	501	.473 9773	15 015	50		5 238 0 238 5
	20	7561	477	7112	87	7326	501	.472 4765	15 008	40		6 285 6 286 2
	30	8038	477	7025	87	7827	501	.470 9765	15 000	30		7 333 2 333 9
	40	8515	477	6938	88	8328	501	.469 4772	14 993	20		8 380 8 381 6
	50	8992	477	6850	88	8829	501	.467 9788	14 984	10		9 428 4 429 3
			477		87				14 976			
22	0	0.179 9469		0.983 6763		0.182 9330		5.466 4812		0	38	
	10	9946	477	6676	87	9831	501	.464 9844	14 968	50		Cosine
	20	0.180 0423	477	6589	87	0.183 0332	501	.463 4884	14 960	40		86 87 88 89
	30	0900	477	6501	88	0834	502	.461 9931	14 953	30		1 17 2 17 4 17 6 17 8
	40	1377	477	6414	87	1335	501	.460 4987	14 944	20		2 25 8 26 1 26 4 26 7
	50	1853	476	6327	87	1836	501	.459 0050	14 937	10		3 34 4 34 8 35 2 35 6
			477		88				14 929			4 43 0 43 5 44 0 44 5
23	0	0.180 2330		0.983 6239		0.183 2337		5.457 5121		0	37	
	10	2807	477	6152	87	2838	501	.456 0201	14 920	50		5 51 6 52 2 52 8 53 4
	20	3284	477	6065	87	3339	501	.454 5288	14 913	40		6 60 2 60 9 61 6 62 3
	30	3761	477	5977	88	3840	501	.453 0383	14 905	30		7 68 8 69 6 70 4 71 2
	40	4238	477	5890	87	4341	501	.451 5486	14 897	20		8 77 4 78 3 79 2 80 1
	50	4715	477	5802	88	4842	501	.450 0596	14 890	10		
			476		87				14 881			
24	0	0.180 5191		0.983 5715		0.183 5343		5.448 5715		0	36	
	10	5668	477	5627	88	5845	502	.447 0842	14 873	50		Tangent
	20	6145	477	5540	87	6346	501	.445 5976	14 866	40		500 501 502
	30	6622	477	5452	88	6847	501	.444 1118	14 858	30		1 50 0 50 1 50 2
	40	7099	477	5364	88	7348	501	.442 6268	14 850	20		2 100 0 100 2 100 4
	50	7576	476	5277	88	7849	501	.441 1426	14 842	10		3 150 0 150 3 150 6
			477						14 834			4 200 0 200 4 200 8
25	0	0.180 8052		0.983 5189		0.183 8350		5.439 6592		0	35	
	10	8529	477	5102	87	8852	502	.438 1765	14 827	50		5 250 0 250 5 251 0
	20	9006	477	5014	88	9353	501	.436 6946	14 819	40		6 300 0 300 6 301 2
	30	9483	477	4926	88	9854	501	.435 2136	14 810	30		7 350 0 350 7 351 4
	40	9960	477	4838	88	0.184 0355	501	.433 7333	14 803	20		8 400 0 400 8 401 6
	50	0.181 0437	477	4751	87	0857	502	.432 2537	14 796	10		9 450 0 450 9 451 8
			476		88				14 787			
26	0	0.181 0913		0.983 4663		0.184 1358		5.430 7760		0	34	
	10	1390	477	4575	88	1859	501	.429 2970	14 780	50		Cotangent
	20	1867	477	4487	88	2360	501	.427 8198	14 772	40		15 100 15 000
	30	2344	477	4399	88	2862	502	.426 3434	14 764	30		1 1510 0 1500 0
	40	2820	476	4311	88	3363	501	.424 8678	14 756	20		2 3020 0 3000 0
	50	3297	477	4224	87	3864	501	.423 3929	14 749	10		3 4530 0 4500 0
			477		88				14 741			4 6040 0 6000 0
27	0	0.181 3774		0.983 4136		0.184 4365		5.421 9188		0	33	
	10	4251	477	4048	88	4867	502	.420 4455	14 733	50		5 7550 0 7500 0
	20	4728	477	3960	88	5368	501	.418 9730	14 725	40		6 9060 0 9000 0
	30	5204	476	3872	88	5869	501	.417 5012	14 718	30		7 10570 0 10500 0
	40	5681	477	3784	88	6371	502	.416 0302	14 710	20		8 12080 0 12000 0
	50	6158	477	3696	88	6872	501	.414 5600	14 702	10		9 13590 0 13500 0
			477						14 694			
28	0	0.181 6635		0.983 3608		0.184 7373		5.413 0906		0	32	
	10	7111	476	3520	88	7875	502	.411 6219	14 687	50		14 900 14 800
	20	7588	477	3431	89	8376	501	.410 1540	14 679	40		1 1490 0 1480 0
	30	8065	477	3343	88	8878	502	.408 6868	14 672	30		2 2980 0 2960 0
	40	8542	477	3255	88	9379	501	.407 2205	14 663	20		3 4470 0 4440 0
	50	9018	476	3167	88	9880	501	.405 7549	14 656	10		4 5960 0 5920 0
			477						14 648			5 7450 0 7400 0
29	0	0.181 9495		0.983 3079		0.185 0382		5.404 2901		0	31	
	10	9972	477	2991	88	0883	501	.402 8260	14 641	50		6 8940 0 8880 0
	20	0.182 0448	476	2902	89	1385	502	.401 3627	14 633	40		7 10430 0 10360 0
	30	0925	477	2814	88	1886	501	.399 9002	14 625	30		8 11920 0 11840 0
	40	1402	477	2726	88	2388	502	.398 4384	14 618	20		9 13410 0 13320 0
	50	1879	477	2637	89	2889	501	.396 9774	14 610	10		14 700 14 600
			476		88				14 602			1 1470 0 1460 0
30	0	0.182 2355		0.983 2549		0.185 3390		5.395 5172		0	30	
												2 2940 0 2920 0
												3 4410 0 4380 0
												4 5880 0 5840 0
												5 7350 0 7300 0
												6 8820 0 8760 0
												7 10290 0 10220 0
												8 11790 0 11680 0
												9 13230 0 13140 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff			Proportional Parts

79° 30'

10° 30'

	'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
30	0		0.182 2355		0.983 2549		0.185 3390		5.395 5172		0	30	Sine
	10		2832	477	2461	88	3892	502	.394 0577	14 595	50		476 477
	20		3309	477	2372	89	4393	501	.392 5900	14 587	40		1 47 6 47 7
	30		3785	476	2284	88	4895	502	.391 1411	14 579	30		2 95 2 95 4
	40		4262	477	2195	89	5396	501	.389 6839	14 572	20		3 142 8 143 1
	50		4739	477	2107	88	5898	502	.388 2275	14 564	10		4 190 4 190 8
			476					501		14 557			5 238 0 238 5
31	0		0.182 5215		0.983 2019		0.185 6399		5.386 7718		0	29	6 285 6 286 2
	10		5692	477	1930	89	6901	502	.385 3169	14 549	50		7 333 2 333 9
	20		6169	477	1842	88	7402	501	.383 8627	14 542	40		8 380 8 381 6
	30		6645	476	1753	89	7904	502	.382 4094	14 533	30		9 428 4 429 3
	40		7122	477	1664	88	8406	501	.380 9567	14 527	20		
	50		7599	477	1576	89	8907	502	.379 5049	14 518	10		
			476							14 511			
32	0		0.182 8075		0.983 1487		0.185 9409		5.378 0638		0	28	Cosine
	10		8552	477	1399	88	9910	501	.376 6034	14 504	50		88 89 90
	20		9029	477	1310	89	0 186 0412	502	.375 1538	14 496	40		1 8 8 8 9 9 0
	30		9505	476	1221	88	0913	501	.373 7050	14 488	30		2 17 6 17 8 18 0
	40		9982	477	1133	89	1415	502	.372 2569	14 481	20		3 26 4 26 7 27 0
	50		0.183 0458	476	1044	88	1917	501	.370 8096	14 473	10		4 35 2 35 6 36 0
			477			89				14 466			5 44 0 44 5 45 0
33	0		0.183 0935		0.983 0955		0.186 2418		5 369 3630		0	27	6 52 8 53 4 54 0
	10		1412	477	0866	89	2920	502	.367 9172	14 458	50		7 61 6 62 3 63 0
	20		1888	476	0777	88	3422	501	.366 4721	14 451	40		8 70 4 71 2 72 0
	30		2365	477	0689	89	3923	502	.365 0278	14 443	30		9 79 2 80 1 81 0
	40		2842	477	0600	88	4425	501	.363 5842	14 436	20		
	50		3318	476	0511	89	4927	502	.362 1414	14 428	10		
			477			90		501		14 421			
34	0		0.183 3795		0.983 0422		0.186 5428		5.360 6993		0	26	Tangent
	10		4271	476	0333	89	5930	502	.359 2580	14 413	50		501 502
	20		4748	477	0244	88	6432	501	.357 8174	14 406	40		1 50 1 50 2
	30		5224	476	0155	89	6933	502	.356 3776	14 398	30		2 100 2 100 4
	40		5701	477	0066	88	7435	501	.354 9385	14 391	20		3 150 3 150 6
	50		6178	477	0.982 9977	89	7937	502	.353 5002	14 383	10		4 200 4 200 8
			476			90				14 376			5 250 5 251 0
35	0		0.183 6654		0.982 9888		0.186 8439		5.352 0626		0	25	6 300 6 301 2
	10		7131	477	9799	89	8940	501	.350 6258	14 368	50		7 350 7 351 4
	20		7607	476	9710	88	9442	502	.349 1897	14 361	40		8 400 8 401 6
	30		8084	477	9621	89	9944	501	.347 7543	14 354	30		9 450 9 451 8
	40		8560	476	9532	88	0.187 0446	502	.346 3197	14 346	20		
	50		9037	477	9443	90	0947	501	.344 8859	14 338	10		
			477					502		14 332			
36	0		0.183 9514		0.982 9353		0.187 1449		5.343 4527		0	24	Cotangent
	10		9990	476	9264	89	1951	502	.342 0204	14 323	50		14 600 14 500
	20		0.184 0467	477	9175	88	2453	501	.340 5887	14 317	40		1 1 460 0 1 450 0
	30		0943	476	9086	89	2955	502	.339 1578	14 310	30		2 2 820 0 2 800 0
	40		1420	477	8997	90	3456	501	.337 7277	14 303	20		3 4 380 0 4 350 0
	50		1896	477	8907	89	3958	502	.336 2983	14 301	10		4 5 840 0 5 800 0
			477							14 294			5 7 300 0 7 250 0
37	0		0.184 2373		0.982 8818		0.187 4460		5.334 8696		0	23	6 8 760 0 8 700 0
	10		2849	476	8729	89	4962	502	.333 4417	14 292	50		7 10 220 0 10 150 0
	20		3326	477	8639	90	5464	501	.332 0145	14 287	40		8 11 680 0 11 600 0
	30		3802	476	8550	89	5966	502	.330 5880	14 280	30		9 13 140 0 13 050 0
	40		4279	477	8461	90	6468	501	.329 1623	14 272	20		
	50		4755	477	8371	89	6969	502	.327 7373	14 265	10		
			477							14 257			
38	0		0.184 5232		0.982 8282		0.187 7471		5.326 3131		0	22	14 400 14 300
	10		5708	476	8192	90	7973	502	.324 8896	14 248	50		1 1 440 0 1 430 0
	20		6185	477	8103	89	8475	501	.323 4668	14 242	40		2 2 880 0 2 860 0
	30		6661	476	8013	90	8977	502	.322 0448	14 235	30		3 4 320 0 4 290 0
	40		7138	477	7924	89	9479	501	.320 6234	14 228	20		4 5 760 0 5 720 0
	50		7614	477	7834	90	9981	502	.319 2029	14 220	10		5 7 200 0 7 150 0
			477							14 214			6 8 640 0 8 580 0
39	0		0.184 8091		0.982 7744		0.188 0483		5.317 7830		0	21	7 10 080 0 10 010 0
	10		8567	476	7655	89	0985	502	.316 3639	14 212	50		8 11 520 0 11 440 0
	20		9043	477	7565	90	1487	501	.314 9455	14 205	40		9 12 960 0 12 870 0
	30		9520	476	7476	89	1989	502	.313 5279	14 199	30		
	40		9996	477	7386	90	2491	501	.312 1110	14 191	20		
	50		0.185 0473	476	7296	89	2993	502	.310 6948	14 184	10		
			477							14 176			
40	0		0.185 0949		0.982 7206		0.188 3495		5.309 2793		0	20	14 200 14 100
										14 162			1 1 420 0 1 410 0
										14 155			2 2 840 0 2 820 0
													3 4 260 0 4 230 0
													4 5 680 0 5 640 0
													5 7 100 0 7 050 0
													6 8 520 0 8 460 0
													7 9 940 0 9 870 0
													8 11 360 0 11 280 0
													9 12 780 0 12 680 0
			Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff.	"	'	Proportional Parts

79° 20'

10° 40'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff.			Proportional Parts
40	0	0.185 0949		0.982 7206		0.188 3495		5.309 2793		0	20	Sine
	10	1426	477	7117	89	3997	502	.307 8646	14 147	50		476 477
	20	1902	476	7027	90	4499	502	.306 4506	14 140	40		1 47 6 47 7
	30	2379	477	6937	90	5001	502	.305 0373	14 133	30		2 95 2 95 4
	40	2855	476	6847	90	5503	502	.303 6248	14 125	20		3 142 8 143 1
	50	3331	476	6757	90	6005	502	.302 2129	14 119	10		4 190 4 190 8
			477		89		502		14 111			5 248 0 238 5
41	0	0.185 3808		0.982 6668		0.188 6507		5.300 8018		0	19	6 285 6 286 2
	10	4284	476	6578	90	7009	502	.299 3915	14 103	50		7 333 2 333 9
	20	4761	477	6488	90	7511	502	.297 9818	14 097	40		8 380 8 381 6
	30	5237	476	6398	90	8013	502	.296 5729	14 089	30		9 428 4 429 3
	40	5713	476	6308	90	8515	502	.295 1647	14 082	20		
	50	6190	477	6218	90	9017	502	.293 7572	14 075	10		
			476		90		503		14 067			Cosine
42	0	0.185 6666		0.982 6128		0.188 9520		5.292 3505		0	18	89 90 91
	10	7143	477	6038	90	0.189 0022	502	.290 9444	14 061	50		1 8 9 9 0 9 1
	20	7619	476	5948	90	0524	502	.289 5391	14 053	40		2 17 8 18 0 18 2
	30	8095	476	5858	90	1026	502	.288 1345	14 046	30		3 26 7 27 0 27 3
	40	8572	477	5768	90	1528	502	.286 7306	14 039	20		4 35 6 36 0 36 4
	50	9048	476	5678	90	2030	502	.285 3275	14 031	10		5 44 5 45 0 45 5
			476		91		503		14 024			6 53 4 54 0 54 6
43	0	0.185 9524		0.982 5587		0.189 2533		5.283 9251		0	17	7 62 3 63 0 63 7
	10	0.186 0001	477	5497	90	3035	502	.282 5233	14 018	50		8 71 2 72 0 72 8
	20	0477	476	5407	90	3537	502	.281 1223	14 010	40		9 80 1 81 0 81 9
	30	0953	477	5317	90	4039	502	.279 7221	14 002	30		
	40	1430	477	5227	90	4541	502	.278 3225	13 996	20		Tangent
	50	1906	476	5136	91	5044	503	.276 9237	13 988	10		502 503
			476		90		502		13 982			1 50 2 50 3
44	0	0.186 2382		0.982 5046		0.189 5546		5.275 5255		0	16	2 100 4 100 6
	10	2859	477	4956	90	6048	502	.274 1281	13 974	50		3 150 8 150 9
	20	3335	476	4866	90	6550	502	.272 7314	13 967	40		4 200 8 201 2
	30	3811	476	4775	91	7052	502	.271 3354	13 960	30		5 251 0 251 5
	40	4288	477	4685	90	7555	503	.269 9401	13 953	20		6 301 2 301 8
	50	4764	476	4594	91	8057	502	.268 5456	13 945	10		7 351 4 352 1
			476		90		502		13 939			8 401 6 402 4
45	0	0.186 5240		0.982 4504		0.189 8559		5.267 1517		0	15	9 451 8 452 7
	10	5717	477	4414	90	9062	503	.265 7586	13 931	50		
	20	6193	476	4323	91	9564	502	.264 3662	13 924	40		Cotangent
	30	6669	476	4233	90	0.190 0066	502	.262 9744	13 918	30		14 200 14 100
	40	7146	477	4142	91	0569	503	.261 5834	13 910	20		1 1 420 0 1 410 0
	50	7622	476	4052	90	1071	502	.260 1931	13 903	10		2 2 810 0 2 820 0
			476		91		502		13 896			3 4 260 0 4 230 0
46	0	0.186 8098		0.982 3961		0.190 1573		5.258 8035		0	14	4 5 680 0 5 640 0
	10	8574	476	3870	91	2076	503	.257 4147	13 888	50		5 7 100 0 7 050 0
	20	9051	477	3780	90	2578	502	.256 0265	13 882	40		6 8 520 0 8 460 0
	30	9527	476	3689	91	3080	502	.254 6390	13 875	30		7 9 940 0 9 870 0
	40	0.187 0003	476	3599	90	3583	503	.253 2523	13 867	20		8 11 360 0 11 280 0
	50	0479	477	3508	91	4085	502	.251 8662	13 861	10		9 12 780 0 12 690 0
			477		91		502		13 853			
47	0	0.187 0956		0.982 3417		0.190 4587		5.250 4809		0	13	14 000 13 900
	10	1432	476	3326	91	5090	503	.249 0962	13 847	50		1 1 400 0 1 390 0
	20	1908	476	3236	90	5592	502	.247 7123	13 839	40		2 2 800 0 2 780 0
	30	2384	477	3145	91	6095	503	.246 3291	13 832	30		3 4 200 0 4 170 0
	40	2861	477	3054	90	6597	502	.244 9465	13 826	20		4 5 600 0 5 560 0
	50	3337	476	2963	91	7100	503	.243 5647	13 818	10		5 7 000 0 6 950 0
			476		90		502		13 811			6 8 400 0 8 340 0
48	0	0.187 3813		0.982 2873		0.190 7602		5.242 1836		0	12	7 9 800 0 9 730 0
	10	4289	476	2782	91	8104	502	.240 8032	13 804	50		8 11 200 0 11 120 0
	20	4766	477	2691	90	8607	503	.239 4234	13 798	40		9 12 600 0 12 510 0
	30	5242	476	2600	91	9109	502	.238 0444	13 790	30		
	40	5718	476	2509	90	9612	503	.236 6661	13 783	20		13 800 13 700
	50	6194	477	2418	91	0.191 0114	502	.235 2885	13 776	10		1 1 380 0 1 370 0
			477		91		503		13 769			2 2 700 0 2 740 0
49	0	0.187 6670		0.982 2327		0.191 0617		5.233 9116		0	11	3 4 140 0 4 110 0
	10	7147	477	2236	91	1119	502	.232 5353	13 763	50		4 5 520 0 5 480 0
	20	7623	476	2145	90	1622	503	.231 1598	13 755	40		5 6 900 0 6 850 0
	30	8099	476	2054	91	2125	502	.229 7850	13 748	30		6 8 280 0 8 220 0
	40	8575	476	1963	90	2627	503	.228 4109	13 741	20		7 9 660 0 9 590 0
	50	9051	477	1872	91	3130	502	.227 0374	13 735	10		8 11 040 0 10 960 0
			477		91		502		13 727			9 12 420 0 12 330 0
50	0	0.187 9528		0.982 1781		0.191 3632		5.225 6647		0	10	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

79° 10'

10° 50'

	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
50	0	0.187 9528		0.982 1781		0.191 3632		5.225 6647		0	10	
	10	0.188 0004	476	1690	91	4135	503	.224 2926	13 721	50		Sine
	20	0480	476	1598	92	4637	502	.222 9213	13 713	40		475 476 477
	30	0956	476	1507	91	5140	503	.221 5506	13 707	30		1 47 5 47 6 47 7
	40	1432	476	1416	91	5643	503	.220 1807	13 699	20		2 95 0 95 2 95 4
	50	1908	476	1325	91	6145	502	.218 8114	13 693	10		3 142 5 142 8 143 1
			477		91		503		13 686			4 190 0 190 4 190 8
51	0	0.188 2385		0.982 1234		0.191 6648		5.217 4428		0	9	
	10	2861	476	1142	92	7150	502	.216 0750	13 678	50		5 237 5 238 0 238 5
	20	3337	476	1051	91	7653	503	.214 7078	13 672	40		6 285 0 285 6 286 2
	30	3813	476	0960	91	8156	503	.213 3413	13 665	30		7 332 5 333 2 333 9
	40	4289	476	0868	92	8658	502	.211 9755	13 658	20		8 380 0 380 8 381 6
	50	4765	476	0777	91	9161	503	.210 6103	13 652	10		9 427 5 428 4 429 3
			476		91		503		13 644			
52	0	0.188 5241		0.982 0686		0.191 9664		5.209 2459		0	8	
	10	5717	476	0594	92	0.192 0166	502	.207 8822	13 637	50		Cosine
	20	6194	477	0503	92	0669	503	.206 5191	13 631	40		91 92 93
	30	6670	476	0411	91	1172	503	.205 1568	13 623	30		1 18 2 18 4 18 6
	40	7146	476	0320	91	1674	502	.203 7951	13 617	20		2 27 3 27 6 27 9
	50	7622	476	0228	92	2177	503	.202 4341	13 610	10		3 36 1 36 8 37 2
			476		91		503		13 603			4 45 5 46 0 46 5
53	0	0.188 8098		0.982 0137		0.192 2680		5.201 0738		0	7	
	10	8574	476	0045	92	3183	503	.199 7142	13 596	50		5 54 6 55 2 55 8
	20	9050	476	0981	91	3685	502	.198 3553	13 589	40		6 63 7 64 4 65 1
	30	9526	476	9862	92	4188	503	.196 9970	13 583	30		7 72 8 73 6 74 4
	40	0.189 0002	476	9770	92	4691	503	.195 6394	13 576	20		8 81 9 82 8 83 7
	50	0478	476	9679	91	5194	503	.194 2826	13 568	10		
			476		92		502		13 562			Tangent
54	0	0.189 0954		0.981 9587		0.192 5696		5.192 9264		0	6	
	10	1430	476	9495	92	6199	503	.191 5709	13 555	50		502 503 504
	20	1907	477	9404	91	6702	503	.190 2160	13 549	40		1 50 2 50 3 50 4
	30	2383	476	9312	92	7205	503	.188 8619	13 541	30		2 100 4 100 6 100 8
	40	2859	476	9220	92	7708	503	.187 5084	13 535	20		3 150 6 150 9 151 2
	50	3335	476	9128	92	8211	503	.186 1556	13 528	10		4 200 8 201 2 201 6
			476		91		502		13 521			5 251 0 251 5 252 0
55	0	0.189 3811		0.981 9037		0.192 8713		5.184 8035		0	5	
	10	4287	476	8945	92	9216	503	.183 4521	13 514	50		6 301 2 301 8 302 4
	20	4763	476	8853	92	9719	503	.182 1013	13 508	40		7 351 4 352 1 352 8
	30	5239	476	8761	92	0.193 0222	503	.180 7513	13 500	30		8 401 6 402 4 403 2
	40	5715	476	8669	92	0725	503	.179 4019	13 494	20		9 451 8 452 7 453 6
	50	6191	476	8577	92	1228	503	.178 0532	13 487	10		
			476		92		503		13 481			Cotangent
56	0	0.189 6667		0.981 8485		0.193 1731		5.176 7061		0	4	
	10	7143	476	8393	92	2234	503	.175 3578	13 473	50		13 700 13 600
	20	7619	476	8301	92	2736	502	.174 0111	13 467	40		1 1 370 0 1 360 0
	30	8095	476	8209	92	3239	503	.172 6651	13 460	30		2 2 740 0 2 720 0
	40	8571	476	8117	92	3742	503	.171 3197	13 454	20		3 4 110 0 4 080 0
	50	9047	476	8025	92	4245	503	.169 9751	13 446	10		4 5 480 0 5 440 0
			476		92		503		13 440			5 6 850 0 6 800 0
57	0	0.189 9523		0.981 7933		0.193 4748		5.168 6311		0	3	
	10	9999	476	7841	92	5251	503	.167 2878	13 433	50		6 8 220 0 8 160 0
	20	0.190 0475	476	7749	92	5754	503	.165 9452	13 426	40		7 9 590 0 9 520 0
	30	0951	476	7657	92	6257	503	.164 6032	13 420	30		8 10 960 0 10 880 0
	40	1427	476	7565	93	6760	503	.163 2619	13 413	20		9 12 330 0 12 240 0
	50	1903	476	7472	92	7263	503	.161 9213	13 406	10		
			476		92		503		13 400			13 500 13 400
58	0	0.190 2379		0.981 7380		0.193 7766		5.160 5813		0	2	
	10	2855	476	7288	92	8269	503	.159 2420	13 393	50		1 1 350 0 1 340 0
	20	3331	476	7196	92	8772	503	.157 9034	13 386	40		2 2 700 0 2 680 0
	30	3807	476	7103	93	9275	503	.156 5655	13 379	30		3 4 050 0 4 020 0
	40	4283	476	7011	92	9778	503	.155 2282	13 373	20		4 5 400 0 5 360 0
	50	4758	476	6919	93	0.194 0281	503	.153 8916	13 366	10		5 6 750 0 6 700 0
			476		93		503		13 359			6 8 100 0 8 040 0
59	0	0.190 5234		0.981 6826		0.194 0784		5.152 5557		0	1	
	10	5710	476	6734	92	1288	504	.151 2204	13 353	50		7 9 450 0 9 380 0
	20	6186	476	6642	92	1791	503	.149 8858	13 346	40		8 10 800 0 10 720 0
	30	6662	476	6549	92	2294	503	.148 5518	13 340	30		9 12 150 0 12 060 0
	40	7138	476	6457	92	2797	503	.147 2186	13 332	20		
	50	7614	476	6364	93	3300	503	.145 8860	13 326	10		13 300
			476		92		503		13 320			1 1 330 0
60	0	0.190 8090		0.981 6272		0.194 3803		5.144 5540		0	0	
												2 2 660 0
												3 3 990 0
												4 5 320 0
												5 6 650 0
												6 7 980 0
												7 9 310 0
												8 10 640 0
												9 11 970 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff.	"	'	Proportional Parts

79° 00'

11° 0'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
0	0	0.190 8090		0.981 6272		0.194 3803		5.144 5540		0	60	
	10	8566	476	6179	93	4306	503	.143 2227	13 313	50		Sine
	20	9042	476	6087	92	4809	503	.141 8921	13 306	40		475 476
	30	9518	476	5994	93	5313	504	.140 5622	13 299	30		1 47 5 47 6
	40	9994	476	5902	92	5816	503	.139 2329	13 293	20		2 95 0 95 2
	50	0 191 0469	475	5809	93	6319	503	.137 9043	13 286	10		3 142 5 142 8
			476						13 280			1 190 0 190 4
1	0	0.191 0945		0 981 5716		0 194 6822		5.136 5763		0	59	
	10	1421	476	5624	92	7325	503	.135 2490	13 273	50		5 237 5 238 0
	20	1897	476	5531	93	7828	503	.133 9223	13 267	40		6 285 0 285 6
	30	2373	476	5438	93	8332	504	.132 5964	13 259	30		7 332 5 333 2
	40	2849	476	5346	92	8835	503	.131 2710	13 254	20		8 380 0 380 8
	50	3325	476	5253	93	9338	503	.129 9464	13 246	10		9 427 5 428 4
			476						13 240			
2	0	0.191 3801		0.981 5160		0.194 9841		5 128 6224		0	58	
	10	4276	475	5067	93	0.195 0345	504	.127 2990	13 234	50		Cosine
	20	4752	476	4974	93	0848	503	.125 9763	13 227	40		92 93 94
	30	5228	476	4882	92	1351	503	.124 6543	13 220	30		1 9 2 9 3 9 4
	40	5704	476	4789	93	1854	503	.123 3329	13 214	20		2 18 4 18 6 18 8
	50	6180	476	4696	93	2358	504	.122 0122	13 207	10		3 27 6 27 9 28 2
			476				503		13 201			4 36 8 37 2 37 6
3	0	0 191 6656		0.981 4603		0 195 2861		5 120 6921		0	57	
	10	7131	475	4510	93	3364	503	.119 3727	13 194	50		5 46 0 46 5 47 0
	20	7607	476	4417	93	3868	504	.118 0540	13 187	40		6 55 2 55 8 56 1
	30	8083	476	4324	93	4371	503	.116 7359	13 181	30		7 64 4 65 1 65 8
	40	8559	476	4231	93	4874	503	.115 4184	13 175	20		8 73 6 74 4 75 2
	50	9035	476	4138	93	5378	504	.114 1017	13 167	10		9 82 8 83 7 84 6
			475				503		13 162			
4	0	0.191 9510		0 981 4045		0.195 5881		5 112 7855		0	56	
	10	9986	476	3952	93	6384	503	.111 4700	13 155	50		Tangent
	20	0.192 0462	476	3859	93	6888	504	.110 1552	13 148	40		503 504
	30	0938	476	3766	93	7391	503	.108 8410	13 142	30		1 50 3 50 4
	40	1414	475	3673	94	7895	504	.107 5275	13 135	20		2 100 6 100 8
	50	1889	476	3579	93	8398	503	.106 2146	13 129	10		3 150 9 151 2
							503		13 122			4 201 2 201 6
5	0	0 192 2365		0.981 3486		0 195 8901		5.104 9024		0	55	
	10	2841	476	3393	93	9405	504	.103 5908	13 116	50		5 251 5 252 0
	20	3317	476	3300	93	9908	503	.102 2799	13 109	40		6 301 8 302 4
	30	3792	475	3207	93	0.196 0412	504	.100 9696	13 103	30		7 352 1 352 8
	40	4268	476	3113	94	0915	503	.099 6599	13 097	20		8 402 4 403 2
	50	4744	476	3020	93	1419	504	.098 3509	13 090	10		9 452 7 453 6
			476				503		13 083			
6	0	0.192 5220		0.981 2927		0.196 1922		5 097 0426		0	54	
	10	5695	475	2833	94	2425	503	.095 7349	13 077	50		Cotangent
	20	6171	476	2740	93	2929	504	.094 4278	13 071	40		13 300 13 200
	30	6647	476	2647	93	3432	503	.093 1214	13 064	30		1 1 330 0 1 320 0
	40	7123	476	2553	94	3936	504	.091 8157	13 057	20		2 2 660 0 2 640 0
	50	7598	475	2460	94	4439	503	.090 5106	13 051	10		3 3 990 0 3 960 0
			476				504		13 045			4 5 320 0 5 280 0
7	0	0.192 8074		0.981 2366		0.196 4943		5 089 2061		0	53	
	10	8550	476	2273	93	5447	504	.087 9023	13 038	50		5 6 650 0 6 600 0
	20	9025	475	2179	94	5950	503	.086 5991	13 032	40		6 7 980 0 7 920 0
	30	9501	476	2086	94	6454	504	.085 2965	13 026	30		7 9 310 0 9 240 0
	40	9977	476	1992	94	6957	503	.083 9946	13 019	20		8 10 640 0 10 560 0
	50	0 193 0453	475	1899	94	7461	504	.082 6934	13 012	10		9 11 970 0 11 880 0
							503		13 006			
8	0	0.193 0928		0.981 1805		0 196 7964		5.081 3928		0	52	
	10	1404	476	1711	94	8468	504	.080 0928	13 000	50		13 100 13 000
	20	1880	476	1618	93	8972	504	.078 7935	12 993	40		1 1 310 0 1 300 0
	30	2355	475	1524	94	9475	503	.077 4948	12 987	30		2 2 620 0 2 600 0
	40	2831	476	1430	94	9979	504	.076 1967	12 981	20		3 3 930 0 3 900 0
	50	3307	476	1337	93	0 197 0482	503	.074 8993	12 974	10		4 5 240 0 5 200 0
			475				504		12 968			5 6 550 0 6 500 0
9	0	0.193 3782		0.981 1243		0.197 0986		5.073 6025		0	51	
	10	4258	476	1149	94	1490	504	.072 3064	12 961	50		6 7 860 0 7 800 0
	20	4734	476	1055	94	1993	503	.071 0108	12 956	40		7 9 170 0 9 100 0
	30	5209	475	0961	94	2497	504	.069 7160	12 948	30		8 10 480 0 10 400 0
	40	5685	476	0868	93	3001	504	.068 4217	12 943	20		9 11 790 0 11 700 0
	50	6161	476	0774	94	3504	503	.067 1282	12 935	10		
			475				504		12 930			12 900
10	0	0 193 6636		0.981 0680		0 197 4008		5.065 8352		0	50	
												1 1 290 0
												2 2 580 0
												3 3 870 0
												4 5 160 0
												5 6 450 0
												6 7 740 0
												7 9 030 0
												8 10 320 0
												9 11 610 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	'	'	Proportional Parts

78° 50'

11° 10'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff.			Proportional Parts
10	0	0.193 6636		0.981 0680		0 197 4008		5.065 8352		0	50	
	10	7112	476	0586	94	4512	504	.064 5429	12 923	50		Sine
	20	7587	475	0492	94	5016	504	.063 2512	12 917	40		475 476
	30	8063	476	0398	94	5519	503	.061 9601	12 911	30		1 47 5 47 6
	40	8539	475	0304	94	6023	504	.060 6697	12 904	20		2 95 0 95 2
	50	9014	475	0210	94	6527	504	.059 3799	12 898	10		3 142 5 142 8
			476		94		504		12 892			4 190 0 190 4
11	0	0.193 9490		0.981 0116		0 197 7031		5.058 0907		0	49	
	10	9966	476	0022	94	7534	503	.056 8022	12 885	0		5 237 5 238 0
	20	0.194 0441	475	0.980 9928	94	8038	504	.055 5143	12 879	50		6 285 0 285 6
	30	0917	476	9834	94	8542	504	.054 2271	12 872	40		7 332 5 333 2
	40	1392	475	9740	94	9046	504	.052 9404	12 867	30		8 380 0 380 8
	50	1868	476	9646	94	9550	504	.051 6544	12 860	20		9 427 5 428 4
			476		94		503		12 854	10		
12	0	0.194 2344		0.980 9552		0.198 0053		5.050 3690		0	48	
	10	2819	475	9457	95	0557	504	.049 0843	12 847	0		Cosine
	20	3295	476	9363	94	1061	504	.047 8002	12 841	50		94 95 96
	30	3770	475	9269	94	1565	504	.046 5167	12 835	40		1 9 4 9 5 9 6
	40	4246	476	9175	94	2069	504	.045 2338	12 829	30		2 18 8 19 0 19 2
	50	4721	475	9080	95	2573	504	.043 9516	12 822	20		3 28 2 28 5 28 8
			476		94		503		12 816	10		4 37 6 38 0 38 4
13	0	0.194 5197		0.980 8986		0.198 3076		5.042 6700		0	47	
	10	5672	475	8892	94	3580	504	.041 3890	12 810	0		5 47 0 47 5 48 0
	20	6148	476	8797	95	4084	504	.040 1087	12 803	50		6 56 4 57 0 57 6
	30	6624	475	8703	94	4588	504	.038 8290	12 797	40		7 65 8 66 5 67 2
	40	7099	476	8609	94	5092	504	.037 5499	12 791	30		8 75 2 76 0 76 8
	50	7575	475	8514	95	5596	504	.036 2714	12 785	20		9 84 6 85 5 86 4
			476		94		504		12 779	10		
14	0	0.194 8050		0.980 8420		0.198 6100		5.034 9935		0	46	
	10	8526	476	8325	55	6604	504	.033 7163	12 772	0		Tangent
	20	9001	475	8231	94	7108	504	.032 4397	12 766	50		503 504 505
	30	9477	476	8136	95	7612	504	.031 1637	12 760	40		1 50 3 50 4 50 5
	40	9952	475	8042	94	8116	504	.029 8883	12 754	30		2 100 6 100 8 101 0
	50	0.195 0428	476	7947	95	8620	504	.028 6136	12 747	20		3 150 9 151 2 151 5
			475		94		504		12 741	10		4 201 2 201 6 202 0
15	0	0.195 0903		0.980 7853		0.198 9124		5.027 3395		0	45	
	10	1379	476	7758	95	9628	504	.026 0660	12 735	0		5 251 5 252 0 252 5
	20	1854	475	7664	94	0132	504	.024 7931	12 729	50		6 301 8 302 4 303 0
	30	2330	476	7569	95	0636	504	.023 5209	12 722	40		7 352 1 352 8 353 5
	40	2805	475	7474	94	1140	504	.022 2492	12 717	30		8 402 4 403 2 404 0
	50	3281	476	7380	94	1644	504	.020 9782	12 710	20		9 452 7 453 6 454 5
			475		95		504		12 704	10		
16	0	0.195 3756		0.980 7285		0.199 2148		5.019 7078		0	44	
	10	4232	476	7190	95	2652	504	.018 4380	12 698	0		Cotangent
	20	4707	475	7095	95	3156	504	.017 1689	12 691	50		12 900 12 800
	30	5183	476	7001	94	3660	504	.015 9003	12 686	40		1 1 290 0 1 280 0
	40	5658	475	6906	95	4164	504	.014 6324	12 679	30		2 2 580 0 2 560 0
	50	6133	476	6811	95	4668	504	.013 3651	12 673	20		3 3 870 0 3 840 0
			475		94		504		12 667	10		4 5 160 0 5 120 0
17	0	0.195 6609		0.980 6716		0.199 5172		5.012 0984		0	43	
	10	7084	476	6621	95	5676	504	.010 8323	12 661	0		5 6 450 0 6 400 0
	20	7560	475	6526	95	6181	505	.009 5668	12 655	50		6 7 740 0 7 680 0
	30	8035	476	6431	95	6685	504	.008 3020	12 648	40		7 9 030 0 8 960 0
	40	8511	475	6337	94	7189	504	.007 0378	12 642	30		8 10 320 0 10 240 0
	50	8986	476	6242	95	7693	504	.005 7741	12 637	20		9 11 610 0 11 520 0
			475		95		504		12 630	10		
18	0	0.195 9461		0.980 6147		0.199 8197		5.004 5111		0	42	
	10	9937	476	6052	95	8701	504	.003 2487	12 624	0		12 700 12 600
	20	0.196 0412	475	5957	95	9206	505	.001 9869	12 618	50		1 1 270 0 1 260 0
	30	0888	476	5861	96	9710	504	.000 7258	12 611	40		2 2 540 0 2 520 0
	40	1363	475	5766	95	0.200 0214	504	4.999 4652	12 606	30		3 3 810 0 3 780 0
	50	1838	476	5671	95	0718	504	.998 2053	12 599	20		4 5 080 0 5 040 0
			475		95		504		12 594	10		5 6 350 0 6 300 0
19	0	0.196 2314		0.980 5576		0.200 1222		4.996 9459		0	41	
	10	2789	475	5481	95	1727	505	.995 6872	12 587	0		6 7 620 0 7 560 0
	20	3265	476	5386	95	2231	504	.994 4291	12 581	50		7 8 890 0 8 820 0
	30	3740	475	5291	96	2735	504	.993 1716	12 575	40		8 10 160 0 10 080 0
	40	4215	476	5195	95	3239	504	.991 9146	12 570	30		9 11 430 0 11 340 0
	50	4691	475	5100	95	3744	505	.990 6584	12 562	20		
			476		95		504		12 557	10		12 500
20	0	0.196 5166		0.980 5005		0.200 4248		4.989 4027		0	40	
												1 1 250 0
												2 2 500 0
												3 3 750 0
												4 5 000 0
												5 6 250 0
												6 7 500 0
												7 8 750 0
												8 10 000 0
												9 11 250 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff.	"	'	Proportional Parts

78° 40'

11° 20'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff.			Proportional Parts
20	0	0.196 5166		0.980 5005		0.200 4248		4.989 4027		0	40	
	10	5641	475	4910	95	4752	504	.988 1476	12 551	50		Sine
	20	6117	476	4814	96	5257	505	.986 8931	12 545	40		475 476
	30	6592	475	4719	95	5761	504	.985 6392	12 539	30		1 47 5 47 6
	40	7067	475	4624	95	6265	504	.984 3860	12 532	20		2 95 0 95 2
	50	7543	476	4528	96	6770	505	.983 1333	12 527	10		3 142 5 142 8
			475		95		504		12 520			4 190 0 190 4
21	0	0.196 8018		0.980 4433		0.200 7274		4.981 8813		0	39	
	10	8494	476	4337	96	7778	504	.980 6298	12 515	50		5 237 5 238 0
	20	8969	475	4242	95	8283	505	.979 3790	12 508	40		6 285 0 285 6
	30	9444	475	4147	96	8787	504	.978 1288	12 502	30		7 332 5 333 2
	40	9919	476	4051	95	9291	505	.976 8791	12 497	20		8 380 0 380 8
	50	0.197 0395	475	3956	96	9796	504	.975 6301	12 490	10		9 427 5 428 4
			475		95		504		12 484			
22	0	0.197 0870		0.980 3860		0.201 0300		4.974 3817		0	38	
	10	1345	475	3764	96	0805	505	.973 1339	12 478	50		Cosine
	20	1821	476	3669	95	1309	504	.971 8866	12 473	40		95 96 97
	30	2296	475	3573	96	1813	505	.970 6400	12 467	30		1 9 5 9 6 9 7
	40	2771	475	3478	95	2318	504	.969 3940	12 460	20		2 19 0 19 2 19 4
	50	3247	476	3382	96	2822	505	.968 1485	12 455	10		3 28 5 28 8 29 1
			475		95		504		12 448			4 38 0 38 4 38 8
23	0	0.197 3722		0.980 3286		0.201 3327		4.966 9037		0	37	
	10	4197	475	3191	95	3831	504	.965 6595	12 442	50		5 47 5 48 0 48 5
	20	4672	475	3095	96	4336	505	.964 4159	12 436	40		6 57 0 57 6 58 2
	30	5148	476	2999	95	4840	504	.963 1729	12 430	30		7 66 5 67 2 67 9
	40	5623	475	2903	96	5345	505	.961 9304	12 425	20		8 76 0 76 8 77 6
	50	6098	475	2808	95	5849	504	.960 6886	12 418	10		9 85 5 86 4 87 3
			475		96		505		12 412			
24	0	0.197 6573		0.980 2712		0.201 6354		4.959 4474		0	36	
	10	7049	476	2616	96	6858	504	.958 2067	12 407	50		Tangent
	20	7524	475	2520	95	7363	505	.956 9667	12 400	40		504 505
	30	7999	475	2424	96	7867	504	.955 7272	12 395	30		1 50 4 50 5
	40	8474	476	2328	95	8372	505	.954 4884	12 388	20		2 100 8 101 0
	50	8950	475	2232	96	8876	504	.953 2501	12 383	10		3 151 2 151 5
			475		95		505		12 376			4 201 6 202 0
25	0	0.197 9425		0.980 2136		0.201 9381		4.952 0125		0	35	
	10	9900	475	2040	96	9886	504	.950 7754	12 371	50		5 252 0 252 5
	20	0.198 0375	475	1944	95	0.202 0390	505	.949 5389	12 365	40		6 302 4 303 0
	30	0850	476	1848	96	0895	504	.948 3031	12 358	30		7 352 8 353 5
	40	1326	475	1752	95	1399	505	.947 0678	12 353	20		8 403 2 404 0
	50	1801	475	1656	96	1904	504	.945 8331	12 347	10		9 453 6 454 5
			475		95		505		12 341			Cotangent
26	0	0.198 2276		0.980 1560		0.202 2409		4.944 5990		0	34	
	10	2751	475	1464	96	2913	504	.943 3655	12 335	50		12 600 12 500
	20	3226	475	1368	95	3418	505	.942 1326	12 329	40		1 1 260 0 1 250 0
	30	3702	476	1272	96	3923	504	.940 9002	12 324	30		2 2 520 0 2 500 0
	40	4177	475	1176	95	4427	505	.939 6685	12 317	20		3 3 780 0 3 750 0
	50	4652	475	1079	96	4932	504	.938 4373	12 312	10		4 5 040 0 5 000 0
			475		95		505		12 305			5 6 300 0 6 250 0
27	0	0.198 5127		0.980 0983		0.202 5437		4.937 2068		0	33	
	10	5602	475	0887	96	5941	504	.935 9768	12 300	50		6 7 500 0 7 500 0
	20	6077	475	0791	95	6446	505	.934 7474	12 294	40		7 8 820 0 8 750 0
	30	6553	476	0694	96	6951	504	.933 5186	12 288	30		8 10 080 0 10 000 0
	40	7028	475	0598	95	7456	505	.932 2904	12 282	20		9 11 340 0 11 250 0
	50	7503	475	0502	96	7960	504	.931 0628	12 276	10		12 400 12 300
			475		95		505		12 270			1 1 240 0 1 230 0
28	0	0.198 7978		0.980 0405		0.202 8465		4.929 8358		0	32	
	10	8453	475	0309	96	8970	504	.928 6093	12 265	50		2 2 480 0 2 460 0
	20	8928	475	0212	95	9475	505	.927 3835	12 258	40		3 3 720 0 3 690 0
	30	9403	476	0116	96	9979	504	.926 1582	12 253	30		4 4 960 0 4 920 0
	40	9879	475	0020	95	0.203 0484	505	.924 9335	12 247	20		5 6 200 0 6 150 0
	50	0.199 0354	475	0.979 9923	96	0989	504	.923 7094	12 241	10		6 7 440 0 7 380 0
			475		95		505		12 235			7 8 680 0 8 610 0
29	0	0.199 0829		0.979 9827		0.203 1494		4.922 4859		0	31	
	10	1304	475	9730	97	1999	505	.921 2630	12 229	50		8 9 920 0 9 840 0
	20	1779	475	9633	96	2504	504	.920 0406	12 224	40		9 11 160 0 11 070 0
	30	2254	475	9537	95	3008	505	.918 8188	12 218	30		12 200
	40	2729	476	9440	96	3513	504	.917 5977	12 211	20		1 1 220 0
	50	3204	475	9344	95	4018	505	.916 3771	12 206	10		2 2 440 0
			475		97		504		12 201			3 3 660 0
30	0	0.199 3679		0.979 9247		0.203 4523		4.915 1570		0	30	
												4 4 880 0
												5 6 100 0
												6 7 320 0
												7 8 540 0
												8 9 760 0
												9 10 980 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

78° 30'

11° 30'

'	"	Sine	Diff	Cosine	Diff.	Tangent	Diff	Cotangent	Diff			Proportional Parts
30	0	0.199 3679		0.979 9247		0.203 4523		4.915 1570		0	30	
	10	4154	475	9150	97	5028	505	.913 9376	12 194	50		
	20	4629	475	9054	96	5533	505	.912 7187	12 189	40		
	30	5105	475	8957	97	6038	505	.911 5005	12 182	30		
	40	5580	475	8860	97	6543	505	.910 2828	12 177	20		
	50	6055	475	8763	96	7048	504	.909 0656	12 172	10		
31	0	0.199 6630		0.979 8667		0.203 7552		4.907 8491		0	29	
	10	7005	475	8570	97	8057	505	.906 6331	12 160	50		
	20	7480	475	8473	97	8562	505	.905 4177	12 154	40		
	30	7955	475	8376	97	9067	505	.904 2029	12 148	30		
	40	8430	475	8279	97	9572	505	.902 9887	12 142	20		
	50	8905	475	8182	96	0 204 0077	505	.901 7751	12 136	10		
32	0	0.199 9380		0.979 8086		0.204 0582		4 900 5620		0	28	
	10	9855	475	7989	97	1087	505	.899 3495	12 125	50		
	20	0 200 0330	475	7892	97	1592	505	.898 1376	12 119	40		
	30	0805	475	7795	97	2097	505	.896 9262	12 114	30		
	40	1280	475	7698	97	2602	505	.895 7154	12 108	20		
	50	1755	475	7601	97	3107	505	.894 5053	12 101	10		
33	0	0 200 2230		0.979 7504		0 204 3612		4.893 2956		0	27	
	10	2705	475	7406	98	4118	506	.892 0866	12 090	50		
	20	3180	475	7309	97	4623	505	.890 8781	12 085	40		
	30	3655	475	7212	97	5128	505	.889 6702	12 079	30		
	40	4130	475	7115	97	5633	505	.888 4629	12 073	20		
	50	4605	475	7018	97	6138	505	.887 2561	12 068	10		
34	0	0.200 5080		0.979 6921		0.204 6643		4.886 0499		0	26	
	10	5555	475	6823	98	7148	505	.884 8443	12 056	50		
	20	6030	475	6726	97	7653	505	.883 6393	12 050	40		
	30	6505	475	6629	97	8158	505	.882 4348	12 045	30		
	40	6980	475	6532	98	8664	506	.881 2309	12 039	20		
	50	7455	475	6434	97	9169	505	.880 0276	12 033	10		
35	0	0.200 7930		0.979 6337		0.204 9674		4 878 8248		0	25	
	10	8405	475	6240	97	0 205 0179	505	.877 6226	12 022	50		
	20	8880	475	6142	98	0684	506	.876 4210	12 016	40		
	30	9354	475	6045	98	1190	505	.875 2199	12 011	30		
	40	9829	475	5947	97	1695	505	.874 0194	12 005	20		
	50	0 201 0304	475	5850	98	2200	505	.872 8195	11 999	10		
36	0	0.201 0779		0.979 6752		0.205 2705		4.871 6201		0	24	
	10	1254	475	5655	97	3210	505	.870 4213	11 988	50		
	20	1729	475	5557	98	3716	506	.869 2231	11 982	40		
	30	2204	475	5460	97	4221	505	.868 0255	11 976	30		
	40	2679	475	5362	98	4726	505	.866 8284	11 971	20		
	50	3154	475	5265	98	5232	506	.865 6318	11 966	10		
37	0	0.201 3629		0.979 5167		0.205 5737		4.864 4359		0	23	
	10	4103	474	5070	97	6242	505	.863 2405	11 954	50		
	20	4578	475	4972	98	6747	505	.862 0456	11 949	40		
	30	5053	475	4874	98	7253	506	.860 8514	11 942	30		
	40	5528	475	4776	98	7758	505	.859 6576	11 938	20		
	50	6003	475	4679	98	8263	505	.858 4645	11 931	10		
38	0	0.201 6478		0.979 4581		0.205 8769		4.857 2719		0	22	
	10	6953	475	4483	98	9274	505	.856 0799	11 920	50		
	20	7428	475	4385	98	9780	506	.854 8884	11 915	40		
	30	7902	474	4288	97	0.206 0285	505	.853 6975	11 909	30		
	40	8377	475	4190	98	0790	505	.852 5072	11 903	20		
	50	8852	475	4092	98	1296	506	.851 3174	11 898	10		
39	0	0.201 9327		0.979 3994		0 206 1801		4.850 1282		0	21	
	10	9802	475	3896	98	2307	506	.848 9395	11 887	50		
	20	0 202 0276	474	3798	98	2812	505	.847 7514	11 881	40		
	30	0751	475	3700	98	3318	505	.846 5638	11 876	30		
	40	1226	475	3602	98	3823	505	.845 3769	11 869	20		
	50	1701	475	3504	98	4328	506	.844 1904	11 865	10		
40	0	0.202 2176		0 979 3406		0.206 4834		4.843 0045		0	20	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	"	Proportional Parts

78° 20'

11° 40'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff.			Proportional Parts
40	0	0.202 2178		0.979 3406		0 206 4834		4 843 0045		0	20	
	10	2651	475	3308	98	5339	505	.841 8192	11 853	50		Sine
	20	3125	474	3210	98	5845	505	.840 6345	11 842	40		474 475
	30	3600	475	3112	98	6350	505	.839 4503	11 837	30		1 47 4 47 5
	40	4075	475	3014	98	6856	505	.838 2666	11 831	20		2 94 8 95 0
	50	4550	474	2916	98	7361	506	.837 0835	11 825	10		3 142 2 142 5
41	0	0.202 5024		0.979 2818		0.206 7867		4.835 9010		0	19	4 189 6 190 0
	10	5499	475	2719	99	8373	506	.834 7190	11 820	50		5 237 0 237 5
	20	5974	475	2621	98	8878	505	.833 5376	11 814	40		6 284 4 285 0
	30	6449	475	2523	98	9384	506	.832 3567	11 809	30		7 331 8 332 5
	40	6923	474	2425	98	9889	505	.831 1763	11 804	20		8 379 2 380 0
	50	7398	475	2326	99	0 207 0395	506	.829 9966	11 797	10		9 426 6 427 5
42	0	0.202 7873		0.979 2228		0.207 0900		4 828 8174		0	18	
	10	8348	475	2130	98	1406	506	.827 6387	11 787	50		Cosine
	20	8822	474	2031	98	1912	506	.826 4606	11 781	40		98 99 100
	30	9297	475	1933	98	2417	505	.825 2830	11 776	30		1 9 8 9 9 10 0
	40	9772	475	1835	98	2923	506	.824 1060	11 770	20		2 19 6 19 8 20 0
	50	0 203 0247	474	1736	98	3429	506	.822 9295	11 765	10		3 29 4 29 7 30 0
43	0	0 203 0721		0.979 1638		0.207 3934		4.821 7636		0	17	4 39 2 39 6 40 0
	10	1196	475	1539	99	4440	506	.820 5782	11 754	50		5 49 0 49 5 50 0
	20	1671	475	1441	98	4946	506	.819 4034	11 748	40		6 58 8 59 4 60 0
	30	2145	474	1342	99	5451	505	.818 2292	11 743	30		7 68 6 69 3 70 0
	40	2620	475	1244	99	5957	506	.817 0554	11 738	20		8 78 4 79 2 80 0
	50	3095	475	1145	99	6463	506	.815 8823	11 731	10		9 88 2 89 1 90 0
44	0	0.203 3569		0.979 1047		0.207 6968		4 814 7096		0	16	
	10	4044	475	0948	99	7474	506	.813 5376	11 720	50		Tangent
	20	4519	475	0849	99	7980	506	.812 3660	11 716	40		505 506
	30	4994	475	0751	98	8486	506	.811 1951	11 709	30		1 50 5 50 6
	40	5468	474	0652	99	8991	505	.810 0246	11 705	20		2 101 0 101 2
	50	5943	475	0553	99	9497	506	.808 8547	11 699	10		3 151 5 151 8
45	0	0.203 6418		0.979 0455		0.208 0003		4 807 6864		0	15	1 202 0 202 4
	10	6892	474	0356	99	0509	506	.806 5166	11 693	50		5 252 5 253 0
	20	7367	475	0257	99	1015	506	.805 3483	11 688	40		6 303 0 303 6
	30	7841	474	0158	99	1520	505	.804 1806	11 677	30		7 353 5 354 2
	40	8316	475	0060	98	2026	506	.803 0135	11 671	20		8 404 0 404 8
	50	8791	474	0.978 9961	99	2532	506	.801 8468	11 667	10		9 454 5 455 4
46	0	0.203 9265		0.978 9862		0.208 3038		4.800 6808		0	14	
	10	9740	475	9763	99	3544	506	.799 5152	11 656	50		Cotangent
	20	0 204 0215	475	9664	99	4050	506	.798 3502	11 650	40		11 900 11 800
	30	0689	474	9565	99	4556	506	.797 1858	11 644	30		1 1 190 0 1 180 0
	40	1164	475	9466	99	5061	505	.796 0219	11 639	20		2 2 380 0 2 360 0
	50	1638	475	9367	99	5567	506	.794 8585	11 634	10		3 3 570 0 3 540 0
47	0	0 204 2113		0.978 9268		0.208 6073		4.793 6957		0	13	4 1 760 0 1 720 0
	10	2588	475	9169	99	6579	506	.792 5334	11 628	50		5 5 950 0 5 900 0
	20	3062	474	9070	99	7085	506	.791 3716	11 623	40		6 7 140 0 7 080 0
	30	3537	475	8971	99	7591	506	.790 2104	11 618	30		7 8 330 0 8 260 0
	40	4011	474	8872	99	8097	506	.789 0497	11 612	20		8 9 520 0 9 440 0
	50	4486	475	8773	99	8603	506	.787 8896	11 607	10		9 10 710 0 10 620 0
48	0	0.204 4961		0.978 8674		0 208 9109		4.786 7300		0	12	
	10	5435	474	8575	99	9615	506	.785 5710	11 596	50		11 700 11 600
	20	5910	475	8476	99	10121	506	.784 4124	11 590	40		1 1 170 0 1 160 0
	30	6384	474	8376	100	0627	506	.783 2545	11 586	30		2 2 340 0 2 320 0
	40	6859	475	8277	99	1133	506	.782 0970	11 579	20		3 3 510 0 3 480 0
	50	7333	475	8178	99	1639	506	.780 9401	11 569	10		4 1 680 0 1 640 0
49	0	0.204 7808		0.978 8079		0.209 2145		4.779 7837		0	11	5 5 850 0 5 800 0
	10	8282	474	7979	100	2651	506	.778 6279	11 564	50		6 7 020 0 6 960 0
	20	8757	475	7880	99	3157	506	.777 4726	11 558	40		7 8 190 0 8 120 0
	30	9231	474	7781	99	3663	506	.776 3178	11 553	30		8 9 360 0 9 280 0
	40	9706	475	7681	100	4169	506	.775 1636	11 548	20		9 10 530 0 10 440 0
	50	0 205 0180	474	7582	99	4675	506	.774 0099	11 542	10		11 500
50	0	0.205 0655		0.978 7483		0.209 5181		4.772 8668		0	10	1 1 150 0
												2 2 300 0
												3 3 450 0
												4 4 600 0
												5 5 750 0
												6 6 900 0
												7 7 050 0
												8 8 200 0
												9 9 350 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff.	"	'	Proportional Parts

78° 10'

11° 50'

	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff.			Proportional Parts
50	0	0.205 0655		0.978 7483		0.209 5181		4.772 8568		0	10	
	10	1129	474	7383	100	5687	506	.771 7041	11 527	50		Sine
	20	1604	475	7284	99	6193	506	.770 5520	11 521	40		474 475
	30	2079	475	7184	100	6700	507	.769 4005	11 515	30		1 47 4 47 5
	40	2553	474	7085	99	7206	506	.768 2494	11 511	20		2 94 8 95 0
	50	3027	474	6985	100	7712	506	.767 0989	11 505	10		3 142 2 142 5
			475		99				11 499			4 189 6 190 0
51	0	0.205 3502		0.978 6886		0.209 8218		4 765 9490		0	9	
	10	3976	474	6786	100	8724	506	.764 7995	11 495	50		5 237 0 237 5
	20	4451	475	6686	100	9230	506	.763 6506	11 489	40		6 284 4 285 0
	30	4925	474	6587	99	9737	507	.762 5023	11 483	30		7 331 8 332 5
	40	5400	475	6487	100	0 210 0243	506	.761 3544	11 479	20		8 379 2 380 0
	50	5874	474	6388	99	0749	506	.760 2071	11 473	10		9 426 6 427 5
			475		100				11 468			
52	0	0.205 6349		0.978 6288		0.210 1255		4 759 0603		0	8	
	10	6823	474	6188	100	1761	506	.757 9141	11 462	50		Cosine
	20	7298	475	6088	100	2268	507	.756 7683	11 458	40		99 100 101
	30	7772	474	5989	99	2774	506	.755 6231	11 452	30		1 9 9 10 0 10 1
	40	8247	475	5889	100	3280	506	.754 4785	11 446	20		2 19 8 20 0 20 2
	50	8721	474	5789	100	3786	506	.753 3343	11 442	10		3 29 7 30 0 30 3
			475		100				11 436			4 39 6 40 0 40 4
53	0	0 205 9195		0.978 5689		0 210 4293		4 752 1907		0	7	
	10	9670	475	5589	100	4799	506	.751 0476	11 431	50		5 49 5 50 0 50 5
	20	0 206 0144	474	5490	99	5305	506	.749 9051	11 425	40		6 59 4 60 0 60 6
	30	0619	475	5390	100	5812	507	.748 7630	11 421	30		7 69 3 70 0 70 7
	40	1093	474	5290	100	6318	506	.747 6215	11 415	20		8 79 2 80 0 80 8
	50	1567	475	5190	100	6824	506	.746 4805	11 410	10		9 89 1 90 0 90 9
			474		100				11 404			
54	0	0.206 2042		0 978 5090		0.210 7331		4 745 3401		0	6	
	10	2516	474	4990	100	7837	506	.744 2001	11 400	50		Tangent
	20	2991	475	4890	100	8343	506	.743 0607	11 394	40		506 507
	30	3465	474	4790	100	8850	507	.741 9218	11 389	30		1 50 6 50 7
	40	3939	474	4690	100	9356	506	.740 7835	11 383	20		2 101 2 101 4
	50	4414	475	4590	100	9862	506	.739 6456	11 379	10		3 151 8 152 1
			474		100				11 373			4 202 4 202 8
55	0	0 206 4888		0 978 4490		0.211 0369		4 738 5083		0	5	
	10	5362	474	4389	101	0875	506	.737 3715	11 368	50		5 253 0 253 5
	20	5837	475	4289	100	1382	507	.736 2353	11 362	40		6 303 6 304 2
	30	6311	474	4189	100	1888	506	.735 0995	11 358	30		7 354 2 354 9
	40	6786	475	4089	100	2394	506	.733 9643	11 352	20		8 404 8 405 6
	50	7260	474	3989	100	2901	507	.732 8296	11 347	10		9 455 4 456 3
			475		100				11 342			
56	0	0 206 7734		0.978 3889		0 211 3407		4.731 6954		0	4	
	10	8209	474	3788	101	3914	507	.730 5617	11 337	50		Cotangent
	20	8683	475	3688	100	4420	506	.729 4286	11 331	40		11 600 11 500
	30	9157	474	3588	100	4927	507	.728 2959	11 327	30		1 1 160 0 1 150 0
	40	9632	475	3487	101	5433	506	.727 1638	11 321	20		2 2 320 0 2 300 0
	50	0.207 0106	474	3387	100	5940	507	.726 0322	11 316	10		3 3 480 0 3 450 0
			475		100				11 310			4 4 640 0 4 600 0
57	0	0 207 0580		0 978 3287		0.211 6446		4 724 9012		0	3	
	10	1054	474	3186	101	6953	507	.723 7706	11 306	50		5 5 800 0 5 750 0
	20	1529	475	3086	100	7460	507	.722 6406	11 300	40		6 6 960 0 6 900 0
	30	2003	474	2985	101	7966	506	.721 5111	11 295	30		7 7 840 0 7 780 0
	40	2477	475	2885	100	8473	507	.720 3821	11 290	20		8 8 960 0 8 900 0
	50	2952	474	2784	101	8979	506	.719 2536	11 285	10		9 10 140 0 10 350 0
			475		100				11 280			
58	0	0 207 3426		0.978 2684		0.211 9486		4.718 1256		0	2	
	10	3900	474	2583	101	9992	506	.716 9981	11 275	50		Cotangent
	20	4374	475	2483	100	0 212 0499	507	.715 8712	11 269	40		11 400 11 300
	30	4849	474	2382	101	1006	507	.714 7448	11 264	30		1 1 140 0 1 130 0
	40	5323	475	2282	101	1512	506	.713 6189	11 259	20		2 2 280 0 2 260 0
	50	5797	474	2181	101	2019	507	.712 4935	11 254	10		3 3 420 0 3 390 0
			475		101				11 249			4 4 560 0 4 520 0
59	0	0.207 6272		0.978 2080		0.212 2525		4.711 3686		0	1	
	10	6746	474	1980	100	3032	507	.710 2442	11 244	50		5 5 700 0 5 650 0
	20	7220	475	1879	101	3539	507	.709 1204	11 238	40		6 6 840 0 6 780 0
	30	7694	474	1778	100	4046	507	.707 9971	11 233	30		7 7 980 0 7 910 0
	40	8168	475	1678	100	4552	506	.706 8742	11 229	20		8 8 120 0 8 040 0
	50	8643	474	1577	101	5059	507	.705 7519	11 223	10		9 9 260 0 9 170 0
			475		101				11 218			
60	0	0 207 9117		0.978 1476		0.212 5566		4.704 6301		0	0	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	"	Proportional Parts

78° 0'

12° 0'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
0		0.207 9117		0.978 1476		0.212 5566		4.704 6301		0	60	
	10	9591	474	1375	101	6072	506	.703 5088	11 213	50		
	20	0.208 0065	474	1274	101	6579	507	702 3880	11 208	40		
	30	0540	475	1174	100	7086	507	.701 2678	11 202	30		
	40	1014	474	1073	101	7593	507	.700 1480	11 198	20		
	50	1488	474	0972	101	8099	506	.699 0288	11 192	10		
							507		11 188			
1	0	0.208 1962		0.978 0871		0.212 8606		4.697 9100		0	59	
	10	2436	474	0770	101	9113	507	.696 7918	11 182	50		
	20	2911	475	0669	101	9620	507	.695 6741	11 177	40		
	30	3385	474	0568	101	0.213 0126	506	.694 5569	11 172	30		
	40	3859	474	0467	101	0633	507	.693 4402	11 167	20		
	50	4333	474	0366	101	1140	507	.692 3240	11 162	10		
							507		11 157			
2	0	0.208 4807		0.978 0265		0.213 1647		4.691 2083		0	58	
	10	5281	474	0164	101	2154	507	.690 0931	11 152	50		
	20	5755	475	0063	101	2661	507	.688 9784	11 147	40		
	30	6230	474	0.977 9961	102	3168	507	.687 8643	11 141	30		
	40	6704	474	9860	101	3674	506	.686 7506	11 137	20		
	50	7178	474	9759	101	4181	507	.685 6375	11 131	10		
							507		11 127			
3	0	0.208 7652		0.977 9658		0.213 4688		4.684 5248		0	57	
	10	8126	474	9557	101	5195	507	.683 4127	11 121	50		
	20	8600	474	9455	102	5702	507	.682 3010	11 117	40		
	30	9074	475	9354	101	6209	507	.681 1899	11 111	30		
	40	9549	475	9253	101	6716	507	.680 0793	11 106	20		
	50	0.209 0023	474	9152	101	7223	507	.678 9692	11 101	10		
							507		11 097			
4	0	0.209 0497		0.977 9050		0.213 7730		4.677 8595		0	56	
	10	0971	474	8949	101	8237	507	.676 7504	11 091	50		
	20	1445	474	8847	102	8744	507	.675 6418	11 086	40		
	30	1919	474	8746	101	9251	507	.674 5337	11 081	30		
	40	2393	474	8645	101	9758	507	.673 4261	11 076	20		
	50	2867	474	8543	102	0.214 0265	507	.672 3190	11 071	10		
							507		11 066			
5	0	0.209 3341		0.977 8442		0.214 0772		4.671 2124		0	55	
	10	3815	474	8340	102	1279	507	.670 1063	11 061	50		
	20	4289	474	8239	101	1786	507	.669 0007	11 056	40		
	30	4763	475	8137	102	2293	507	.667 8956	11 051	30		
	40	5238	474	8036	101	2800	507	.666 7910	11 046	20		
	50	5712	474	7934	102	3307	507	.665 6869	11 041	10		
							507		11 037			
6	0	0.209 6186		0.977 7832		0.214 3814		4.664 5832		0	54	
	10	6660	474	7731	101	4321	507	.663 4801	11 031	50		
	20	7134	474	7629	102	4828	507	.662 3775	11 026	40		
	30	7608	474	7527	102	5336	508	.661 2754	11 021	30		
	40	8082	474	7426	101	5843	507	.660 1738	11 016	20		
	50	8556	474	7324	102	6350	507	.659 0727	11 011	10		
							507		11 006			
7	0	0.209 9030		0.977 7222		0.214 6857		4.657 9721		0	53	
	10	9504	474	7120	102	7364	507	.656 8720	11 001	50		
	20	9978	474	7019	101	7871	507	.655 7723	10 997	40		
	30	0.210 0452	474	6917	102	8379	508	.654 6732	10 991	30		
	40	0926	474	6815	102	8886	507	.653 5746	10 986	20		
	50	1400	474	6713	102	9393	507	.652 4765	10 981	10		
							507		10 977			
8	0	0.210 1874		0.977 6611		0.214 9900		4.651 3788		0	52	
	10	2348	474	6509	102	0.215 0407	507	.650 2817	10 971	50		
	20	2822	474	6407	102	0915	508	.649 1850	10 967	40		
	30	3296	474	6305	102	1422	507	.648 0889	10 961	30		
	40	3770	474	6203	102	1929	507	.646 9932	10 957	20		
	50	4244	474	6101	102	2436	508	.645 8980	10 952	10		
							508		10 946			
9	0	0.210 4718		0.977 5999		0.215 2944		4.644 8034		0	51	
	10	5192	474	5897	102	3451	507	.643 7092	10 942	50		
	20	5665	473	5795	102	3958	507	.642 6155	10 937	40		
	30	6139	474	5693	102	4466	508	.641 5223	10 932	30		
	40	6613	474	5591	102	4973	507	.640 4296	10 927	20		
	50	7087	474	5489	102	5480	507	.639 3374	10 922	10		
							508		10 917			
10	0	0.210 7561		0.977 5387		0.215 5988		4.638 2457		0	50	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

77° 50'

12° 10'

	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff.			Proportional Parts
10	0	0.210 7561		0.977 5387		0.215 5988		4.638 2457		0	50	
	10	8035	474	5285	102	6495	507	.637 1544	10 913	50		
	20	8509	474	5182	103	7002	507	.636 0637	10 907	40		
	30	8983	474	5080	102	7510	508	.634 9734	10 903	30		
	40	9457	474	4978	102	8017	507	.633 8837	10 897	20		
	50	9931	474	4876	103	8524	507	.632 7944	10 893	10		
			474				508		10 888			
11	0	0.211 0405		0.977 4773		0.215 9032		4.631 7056		0	49	
	10	0879	474	4671	102	9539	507	.630 6173	10 883	50		Sine 473 474
	20	1352	473	4569	102	0.216 0047	508	.629 5295	10 878	40		1 47 3 47 4
	30	1826	474	4466	103	0554	507	.628 4422	10 873	30		2 94 6 94 8
	40	2300	474	4364	102	1062	508	.627 3554	10 868	20		3 141 9 142 2
	50	2774	474	4261	102	1569	507	.626 2690	10 864	10		4 189 2 189 6
			474				508		10 858			5 236 5 237 0
12	0	0.211 3248		0.977 4169		0.216 2077		4.625 1832		0	48	
	10	3722	474	4056	103	2584	507	.624 0978	10 854	50		6 283 8 284 4
	20	4196	474	3954	102	3092	508	.623 0129	10 849	40		7 331 1 331 8
	30	4670	473	3851	103	3599	507	.621 9285	10 844	30		8 378 4 379 2
	40	5143	473	3749	102	4107	508	.620 8446	10 839	20		9 425 7 426 6
	50	5617	474	3646	103	4614	507	.619 7612	10 834	10		
			474		102		508		10 829			Cosine 102 103 104
13	0	0.211 6091		0.977 3544		0.216 5122		4.618 6783		0	47	
	10	6565	474	3441	103	5629	507	.617 5958	10 825	50		1 10 2 10 3 10 4
	20	7039	474	3339	102	6137	508	.616 5139	10 819	40		2 20 4 20 6 20 8
	30	7513	473	3236	103	6644	507	.615 4324	10 815	30		3 30 6 30 9 31 2
	40	7986	473	3133	103	7152	508	.614 3514	10 810	20		4 40 8 41 2 41 6
	50	8460	474	3031	102	7659	507	.613 2708	10 806	10		5 51 0 51 5 52 0
			474		103		508		10 800			6 61 2 61 8 62 4
14	0	0.211 8934		0.977 2928		0.216 8167		4.612 1908		0	46	
	10	9408	474	2825	103	8675	508	.611 1113	10 795	50		7 71 4 72 1 72 8
	20	9882	474	2722	103	9182	507	.610 0322	10 791	40		8 81 6 82 4 83 2
	30	0.212 0355	474	2620	102	9690	508	.608 9536	10 786	30		9 91 8 92 7 93 6
	40	0829	474	2517	103	0.217 0198	507	.607 8755	10 781	20		
	50	1303	474	2414	103	0705	508	.606 7979	10 776	10		Tangent 507 508
			474						10 772			1 50 7 50 8
15	0	0.212 1777		0.977 2311		0.217 1213		4.605 7207		0	45	
	10	2250	473	2208	103	1721	508	.604 6441	10 766	50		2 101 4 101 6
	20	2724	474	2105	103	2228	507	.603 5679	10 762	40		3 152 1 152 4
	30	3198	474	2002	103	2736	508	.602 4922	10 757	30		4 202 8 203 2
	40	3672	474	1899	103	3244	508	.601 4170	10 752	20		5 253 5 254 0
	50	4146	473	1796	103	3751	507	.600 3422	10 748	10		6 304 2 304 8
			473				508		10 742			7 354 9 355 6
16	0	0.212 4619		0.977 1693		0.217 4259		4.599 2680		0	44	
	10	5093	474	1590	103	4767	508	.598 1942	10 738	50		8 405 6 406 4
	20	5567	473	1487	103	5275	508	.597 1209	10 733	40		9 456 3 457 2
	30	6040	473	1384	103	5782	507	.596 0481	10 728	30		
	40	6514	474	1281	103	6290	508	.594 9757	10 724	20		Cotangent 10 900 10 800
	50	6988	474	1178	103	6798	508	.593 9039	10 718	10		1 1090 0 1080 0
			474						10 714			2 2180 0 2160 0
17	0	0.212 7462		0.977 1075		0.217 7308		4.592 8325		0	43	
	10	7935	473	0972	103	7813	507	.591 7616	10 709	50		3 3270 0 3240 0
	20	8409	474	0869	103	8321	508	.590 6911	10 705	40		4 4360 0 4320 0
	30	8883	474	0765	104	8829	508	.589 6212	10 700	30		5 5450 0 5400 0
	40	9356	473	0662	103	9337	508	.588 5517	10 695	20		6 6540 0 6480 0
	50	9830	474	0559	103	9845	508	.587 4827	10 690	10		7 7630 0 7560 0
			474						10 686			8 8720 0 8640 0
18	0	0.213 0304		0.977 0456		0.218 0353		4.586 4141		0	42	
	10	0778	474	0352	104	0860	507	.585 3461	10 680	50		9 9810 0 9720 0
	20	1251	473	0249	103	1368	508	.584 2785	10 676	40		10 700 10 600
	30	1725	474	0146	103	1876	508	.583 2114	10 671	30		1 1070 0 1060 0
	40	2199	473	0042	104	2384	508	.582 1447	10 667	20		2 2140 0 2120 0
	50	2672	474	0.976 9939	103	2892	508	.581 0786	10 661	10		3 3210 0 3180 0
			474						10 657			4 4280 0 4240 0
19	0	0.213 3146		0.976 9836		0.218 3400		4.580 0129		0	41	
	10	3620	474	9732	104	3908	508	.578 9477	10 652	50		5 5350 0 5300 0
	20	4093	473	9629	103	4416	508	.577 8829	10 648	40		6 6420 0 6360 0
	30	4567	474	9525	103	4924	508	.576 8187	10 642	30		7 7490 0 7420 0
	40	5040	473	9422	103	5432	508	.575 7549	10 638	20		8 8560 0 8480 0
	50	5514	474	9318	104	5940	508	.574 6915	10 634	10		9 9630 0 9540 0
			474		103		508		10 628			
20	0	0.213 5988		0.976 9215		0.218 6448		4.573 6287		0	40	
		Cosine	Diff	Sine	Diff	Cotangent	Diff.	Tangent	Diff.	"	'	Proportional Parts

77° 40'

12° 20'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
20	0	0.213 5988		0.976 9215		0.218 6448		4.573 6287		0	40	
	10	6461	473	9111	104	6956	508	.572 5663	10 624	50		
	20	6935	474	9008	103	7464	508	.571 5044	10 619	40		
	30	7409	474	8904	104	7972	508	.570 4430	10 614	30		
	40	7882	473	8800	104	8480	508	.569 3820	10 610	20		
	50	8356	474	8697	103	8988	508	.568 3215	10 605	10		
			473		104		508		10 600			
21	0	0.213 8829		0.976 8593		0.218 9496		4.567 2615		0	39	
	10	9303	474	8489	104	0 219 0004	508	.566 2019	10 596	50		
	20	9777	474	8386	103	0512	508	.565 1428	10 591	40		
	30	0.214 0250	473	8282	104	1020	508	.564 0842	10 586	30		
	40	0724	474	8178	104	1528	508	.563 0260	10 582	20		
	50	1197	473	8074	104	2036	508	.561 9683	10 577	10		
			474		104		508		10 572			
22	0	0.214 1671		0.976 7970		0.219 2544		4.560 9111		0	38	
	10	2144	473	7867	103	3053	509	.559 8544	10 567	50		
	20	2618	474	7763	104	3561	508	.558 7981	10 563	40		
	30	3092	474	7659	104	4069	508	.557 7422	10 559	30		
	40	3565	473	7555	104	4577	508	.556 6869	10 553	20		
	50	4039	474	7451	104	5085	508	.555 6320	10 549	10		
			473		104		508		10 544			
23	0	0.214 4512		0.976 7347		0.219 5593		4.554 5776		0	37	
	10	4986	474	7243	104	6101	508	.553 5236	10 540	50		
	20	5459	473	7139	104	6610	509	.552 4701	10 535	40		
	30	5933	474	7035	104	7118	508	.551 4171	10 530	30		
	40	6406	473	6931	104	7626	508	.550 3646	10 525	20		
	50	6880	474	6827	104	8134	508	.549 3125	10 521	10		
			473		104		509		10 517			
24	0	0.214 7353		0.976 6723		0.219 8643		4.548 2608		0	36	
	10	7827	474	6619	104	9151	508	.547 2097	10 511	50		
	20	8300	473	6515	104	9659	508	.546 1590	10 507	40		
	30	8774	474	6410	105	0.220 0167	508	.545 1087	10 503	30		
	40	9247	473	6306	104	0676	509	.544 0589	10 498	20		
	50	9721	474	6202	104	1184	508	.543 0096	10 493	10		
			473		104		508		10 488			
25	0	0.215 0194		0.976 6098		0.220 1692		4.541 9608		0	35	
	10	0668	474	5993	105	2201	509	.540 9124	10 484	50		
	20	1141	473	5889	104	2709	508	.539 8644	10 480	40		
	30	1615	474	5785	104	3217	508	.538 8170	10 474	30		
	40	2088	473	5681	104	3726	509	.537 7700	10 470	20		
	50	2562	474	5576	105	4234	508	.536 7234	10 466	10		
			473		104		508		10 461			
26	0	0.215 3035		0.976 5472		0.220 4742		4.535 6773		0	34	
	10	3508	473	5367	105	5251	509	.534 6317	10 456	50		
	20	3982	474	5263	104	5759	508	.533 5865	10 452	40		
	30	4455	473	5159	104	6268	509	.532 5418	10 447	30		
	40	4929	474	5054	105	6776	508	.531 4976	10 442	20		
	50	5402	473	4950	104	7284	508	.530 4538	10 438	10		
			474		105		509		10 433			
27	0	0.215 5876		0.976 4845		0.220 7793		4.529 4105		0	33	
	10	6349	473	4741	104	8301	508	.528 3676	10 429	50		
	20	6822	474	4636	105	8810	509	.527 3252	10 424	40		
	30	7296	473	4531	105	9318	508	.526 2832	10 420	30		
	40	7769	474	4427	104	9827	509	.525 2417	10 415	20		
	50	8243	473	4322	105	0.221 0335	508	.524 2007	10 410	10		
			474		104		509		10 406			
28	0	0.215 8716		0.976 4218		0.221 0844		4.523 1601		0	32	
	10	9189	473	4113	105	1352	508	.522 1199	10 402	50		
	20	9663	474	4008	105	1861	509	.521 0803	10 396	40		
	30	0.216 0136	473	3904	104	2369	508	.520 0410	10 393	30		
	40	0609	474	3799	105	2878	509	.519 0023	10 387	20		
	50	1083	473	3694	105	3386	508	.517 9640	10 383	10		
			474		105		509		10 379			
29	0	0.216 1556		0.976 3589		0.221 3895		4.516 9261		0	31	
	10	2029	473	3484	105	4404	509	.515 8887	10 374	50		
	20	2503	474	3380	104	4912	508	.514 8518	10 369	40		
	30	2976	473	3275	105	5421	509	.513 8153	10 365	30		
	40	3449	474	3170	105	5929	508	.512 7792	10 361	20		
	50	3923	473	3065	105	6438	509	.511 7436	10 356	10		
			474		105		509		10 351			
30	0	0.216 4396		0.976 2960		0.221 6947		4.510 7085		0	30	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

77° 30'

12° 30'

"	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff.			Proportional Parts
30	0	0.216 4396		0.976 2960		0.221 6947		4 510 7085		0	30	
	10	4869	473	2855	105	7455	508	509 6738	10 347	50		
	20	5343	474	2750	105	7964	509	508 6396	10 342	40		Sine
	30	5816	473	2645	105	8473	509	507 6058	10 338	30		473 474
	40	6289	474	2540	105	8981	508	506 5725	10 333	20		1 47 3 47 4
	50	6763	474	2435	105	9490	509	505 5396	10 329	10		2 94 6 94 8
			473		105		509		10 324			3 141 9 142 2
31	0	0.216 7236		0.976 2330		0.221 9999		4 504 6072		0	29	4 189 2 189 6
	10	7709	473	2225	105	0.222 0507	508	503 4752	10 320	50		5 236 5 237 0
	20	8183	474	2120	105	1016	509	502 4437	10 315	40		6 283 8 284 4
	30	8656	473	2015	105	1525	509	501 4126	10 311	30		7 331 1 331 8
	40	9129	473	1910	106	2034	508	500 3820	10 306	20		8 378 4 379 2
	50	9602	474	1804	105	2542	509	499 3518	10 302	10		9 425 7 426 6
			474		105		509		10 297			
32	0	0.217 0076		0.976 1699		0.222 3061		4 498 3221		0	28	
	10	0549	473	1594	105	3560	509	497 2928	10 293	50		Cosine
	20	1022	473	1489	105	4069	509	496 2640	10 288	40		105 106 107
	30	1495	473	1383	106	4577	508	495 2356	10 284	30		1 10 5 10 6 10 7
	40	1969	474	1278	105	5086	509	494 2077	10 279	20		2 21 0 21 2 21 4
	50	2442	473	1173	105	5595	509	493 1802	10 275	10		3 31 5 31 8 32 1
			473		105		509		10 270			4 42 0 42 4 42 8
33	0	0.217 2915		0.976 1068		0.222 6104		4 492 1532		0	27	5 52 5 53 0 53 5
	10	3388	474	0962	106	6613	509	491 1266	10 266	50		6 63 0 63 6 64 2
	20	3862	473	0857	106	7122	509	490 1005	10 261	40		7 73 5 74 2 74 9
	30	4335	473	0751	106	7631	509	489 0748	10 257	30		8 84 0 84 8 85 6
	40	4808	473	0646	105	8139	508	488 0496	10 252	20		9 94 5 95 4 96 3
	50	5281	473	0541	106	8648	509	487 0248	10 248	10		
			473		106		509		10 244			
34	0	0.217 5764		0.976 0435		0.222 9157		4 486 0004		0	26	
	10	6228	474	0330	105	9666	509	484 9765	10 239	50		Tangent
	20	6701	473	0224	106	0.223 0175	509	483 9530	10 235	40		508 509 510
	30	7174	473	0119	106	0684	509	482 9300	10 230	30		1 50 8 50 9 51 0
	40	7647	473	0013	106	1193	509	481 9074	10 226	20		2 101 6 101 8 102 0
	50	8120	473	0.975 9907	105	1702	509	480 8853	10 221	10		3 152 4 152 7 153 0
			473		105		509		10 217			4 203 2 203 6 204 0
35	0	0.217 8593		0.975 9802		0.223 2211		4 479 8636		0	25	5 254 0 254 5 255 0
	10	9067	474	9696	106	2720	509	478 8424	10 212	50		6 304 8 305 4 306 0
	20	9540	473	9590	106	3229	509	477 8216	10 208	40		7 355 6 356 3 357 0
	30	0.218 0013	473	9485	105	3738	509	476 8012	10 204	30		8 406 4 407 2 408 0
	40	0486	473	9379	106	4247	509	475 7813	10 199	20		9 457 2 458 1 459 0
	50	0959	473	9273	105	4756	509	474 7619	10 194	10		
			473		105		509		10 191			
36	0	0.218 1432		0.975 9168		0.223 5265		4 473 7428		0	24	
	10	1906	474	9062	106	5774	509	472 7242	10 186	50		Cotangent
	20	2379	473	8956	106	6283	509	471 7061	10 181	40		10 400 10 300
	30	2852	473	8850	106	6792	509	470 6884	10 177	30		1 1040 0 1030 0
	40	3325	473	8744	106	7301	509	469 6711	10 173	20		2 2080 0 2060 0
	50	3798	473	8639	105	7810	509	468 6543	10 168	10		3 3120 0 3090 0
			473		106		509		10 164			4 4160 0 4120 0
37	0	0.218 4271		0.975 8533		0.223 8319		4 467 6379		0	23	5 5200 0 5150 0
	10	4744	473	8427	106	8828	509	466 6220	10 159	50		6 6240 0 6180 0
	20	5217	473	8321	106	9337	509	465 6065	10 155	40		7 7280 0 7210 0
	30	5690	474	8215	106	9847	509	464 5914	10 151	30		8 8320 0 8240 0
	40	6164	473	8109	106	0.224 0356	509	463 5768	10 146	20		9 9360 0 9270 0
	50	6637	473	8003	106	0865	509	462 5626	10 142	10		
			473		106		509		10 137			10 200 10 100
38	0	0.218 7110		0.975 7897		0.224 1374		4 461 5489		0	22	1 1020 0 1010 0
	10	7583	473	7791	106	1883	509	460 5356	10 133	50		2 2040 0 2020 0
	20	8056	473	7685	106	2392	509	459 5227	10 129	40		3 3060 0 3030 0
	30	8529	473	7579	106	2902	509	458 5103	10 124	30		4 4080 0 4040 0
	40	9002	473	7473	106	3411	509	457 4983	10 120	20		5 5100 0 5050 0
	50	9475	473	7366	107	3920	509	456 4868	10 115	10		6 6120 0 6060 0
			473		106		509		10 112			7 7140 0 7070 0
39	0	0.218 9948		0.975 7260		0.224 4429		4 455 4756		0	21	8 8160 0 8080 0
	10	0.219 0421	473	7154	106	4939	510	454 4650	10 106	50		9 9180 0 9090 0
	20	0894	473	7048	106	5448	509	453 4547	10 103	40		1 1000 0
	30	1367	473	6942	106	5957	509	452 4449	10 098	30		2 2000 0
	40	1840	473	6835	107	6466	509	451 4355	10 094	20		3 3000 0
	50	2313	473	6729	106	6976	510	450 4266	10 089	10		4 4000 0
			473		106		509		10 085			5 5000 0
40	0	0.219 2786		0.975 6623		0.224 7485		4 449 4181		0	20	6 6000 0
												7 7000 0
												8 8000 0
												9 9000 0

77° 20'

12° 40'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
40	0	0.219 2786	473	0.975 6623		0.224 7485		4.449 4181		0	20	
	10	3259	473	6516	107	7994	509	.448 4100	10 081	50		
	20	3732	473	6410	106	8504	510	.447 4024	10 076	40		
	30	4205	473	6304	106	9013	509	.446 3952	10 072	30		
	40	4678	473	6197	107	9522	509	.445 3885	10 067	20		
	50	5151	473	6091	106	0 225 0032	510	.444 3821	10 064	10		
			473		106		509		10 059			
41	0	0.219 5624	473	0.975 5985		0.225 0541		4.443 3762		0	19	
	10	6097	473	5878	107	1050	509	.442 3708	10 054	50		
	20	6570	473	5772	106	1560	510	.441 3657	10 051	40		
	30	7043	473	5665	107	2069	509	.440 3611	10 046	30		
	40	7516	473	5559	106	2578	509	.439 3570	10 041	20		
	50	7989	473	5452	107	3088	510	.438 3532	10 038	10		
			473		107		509		10 032			
42	0	0.219 8462	473	0.975 5345		0.225 3597		4.437 3500		0	18	
	10	8935	473	5239	106	4107	510	.436 3471	10 029	50		
	20	9408	473	5132	107	4616	509	.435 3446	10 025	40		
	30	9881	473	5026	106	5126	510	.434 3426	10 020	30		
	40	0 220 0354	473	4919	107	5635	509	.433 3411	10 015	20		
	50	0827	473	4812	107	6145	510	.432 3399	10 012	10		
			473		106		509		10 007			
43	0	0.220 1300	473	0.975 4706		0.225 6654		4.431 3392		0	17	
	10	1773	472	4599	107	7164	510	.430 3389	10 003	50		
	20	2245	473	4492	107	7673	509	.429 3391	9 998	40		
	30	2718	473	4385	107	8183	510	.428 3396	9 995	30		
	40	3191	473	4278	107	8692	509	.427 3407	9 989	20		
	50	3664	473	4172	106	9202	510	.426 3421	9 986	10		
			473		107		509		9 982			
44	0	0.220 4137	473	0.975 4065		0.225 9711		4.425 3439		0	16	
	10	4610	473	3958	107	0.226 0221	510	.424 3462	9 977	50		
	20	5083	473	3851	107	0731	510	.423 3490	9 972	40		
	30	5556	473	3744	107	1240	509	.422 3521	9 969	30		
	40	6029	472	3637	107	1750	510	.421 3557	9 964	20		
	50	6501	473	3530	107	2259	509	.420 3597	9 960	10		
			473		107		510		9 956			
45	0	0.220 6974	473	0.975 3423		0.226 2769		4.419 3641		0	15	
	10	7447	473	3316	107	3279	510	.418 3689	9 952	50		
	20	7920	473	3209	107	3788	509	.417 3742	9 947	40		
	30	8393	473	3102	107	4298	510	.416 3799	9 943	30		
	40	8866	473	2995	107	4808	510	.415 3861	9 938	20		
	50	9339	472	2888	107	5317	509	.414 3926	9 935	10		
			472		107		510		9 930			
46	0	0.220 9811	473	0.975 2781		0.226 5827		4.413 3996		0	14	
	10	0 221 0284	473	2674	107	6337	510	.412 4070	9 926	50		
	20	0757	473	2566	108	6846	509	.411 4148	9 922	40		
	30	1230	473	2459	107	7356	510	.410 4231	9 917	30		
	40	1703	473	2352	107	7866	510	.409 4318	9 913	20		
	50	2175	472	2245	107	8376	510	.408 4409	9 909	10		
			473		107		509		9 905			
47	0	0.221 2648	473	0.975 2138		0.226 8885		4.407 4504		0	13	
	10	3121	473	2030	108	9395	510	.406 4604	9 900	50		
	20	3594	473	1923	107	9905	510	.405 4707	9 897	40		
	30	4067	473	1816	107	0 227 0415	510	.404 4815	9 892	30		
	40	4539	472	1708	108	0925	510	.403 4927	9 888	20		
	50	5012	473	1601	107	1434	509	.402 5044	9 883	10		
			473		107		510		9 880			
48	0	0.221 5485	473	0.975 1494		0.227 1944		4.401 5164		0	12	
	10	5958	473	1386	108	2454	510	.400 5289	9 875	50		
	20	6430	472	1279	107	2964	510	.399 5418	9 871	40		
	30	6903	473	1171	108	3474	510	.398 5552	9 866	30		
	40	7376	473	1064	107	3984	510	.397 5689	9 863	20		
	50	7849	472	0956	108	4494	509	.396 5831	9 858	10		
			472		107		510		9 854			
49	0	0.221 8321	473	0.975 0849		0.227 5003		4.395 5977		0	11	
	10	8794	473	0741	108	5513	510	.394 6127	9 850	50		
	20	9267	473	0634	107	6023	510	.393 6281	9 846	40		
	30	9740	472	0526	108	6533	510	.392 6439	9 842	30		
	40	0 222 0212	473	0418	107	7043	510	.391 6602	9 837	20		
	50	0685	473	0311	107	7553	510	.390 6769	9 833	10		
			473		108		510		9 829			
50	0	0.222 1158		0.975 0203		0.227 8063		4.389 6940		0	10	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff			Proportional Parts

77° 10'

12° 50'

	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
50	0	0.222 1158		0.975 0203		0.227 8063		4.389 6940		0	10	
	10	1630	472	0095	108	8573	510	.388 7115	9 825	50		
	20	2103	473	0.974 9988	107	9083	510	.387 7294	9 821	40		
	30	2576	473	9880	108	9593	510	.386 7478	9 816	30		
	40	3049	473	9772	108	0 228 0103	510	.385 7666	9 812	20		
	50	3521	472	9664	108	0613	510	.384 7858	9 808	10		
			473		108		510		9 804			
51	0	0.222 3994		0.974 9556		0 228 1123		4.383 8054		0	9	Sine
	10	4467	473	9449	107	1633	510	.382 8254	9 800	50		472 473
	20	4939	472	9341	108	2143	510	.381 8458	9 796	40		1 47 2 47 3
	30	5412	473	9233	108	2653	510	.380 8667	9 791	30		2 94 4 94 6
	40	5885	473	9125	108	3163	510	.379 8880	9 787	20		3 141 6 141 9
	50	6357	472	9017	108	3674	511	.378 9096	9 784	10		4 188 8 189 2
			473		108		510		9 779			5 236 0 236 5
52	0	0 222 6830		0.974 8909		0 228 4184		4 377 9317		0	8	6 282 2 282 8
	10	7302	472	8801	108	4694	510	.376 9543	9 774	50		7 330 4 331 1
	20	7775	473	8693	108	5204	510	.375 9772	9 771	40		8 377 6 378 4
	30	8248	473	8585	108	5714	510	.375 0005	9 767	30		9 424 8 425 7
	40	8720	472	8477	108	6224	510	.374 0243	9 762	20		
	50	9193	473	8369	108	6734	510	.373 0485	9 758	10		
			473		108		510		9 754			Cosine
53	0	0.222 9666		0.974 8261		0 228 7244		4 372 0731		0	7	107 108 109
	10	0 223 0138	472	8153	108	7755	511	.371 0981	9 750	50		1 10 7 10 8 10 9
	20	0611	473	8045	108	8265	510	.370 1235	9 746	40		2 21 4 21 6 21 8
	30	1083	472	7937	108	8775	510	.369 1493	9 742	30		3 32 1 32 4 32 7
	40	1556	473	7828	109	9285	510	.368 1756	9 737	20		4 42 8 43 2 43 6
	50	2029	472	7720	108	9796	511	.367 2022	9 734	10		5 53 5 54 0 54 5
			473		108		510		9 729			6 64 2 64 8 65 4
54	0	0 223 2501		0.974 7612		0 229 0306		4 366 2293		0	6	7 74 9 75 6 76 3
	10	2974	473	7504	108	0816	510	.365 2568	9 725	50		8 85 6 86 4 87 2
	20	3446	472	7395	109	1326	510	.364 2847	9 721	40		9 96 3 97 2 98 1
	30	3919	473	7287	108	1837	511	.363 3130	9 717	30		
	40	4391	472	7179	108	2347	510	.362 3417	9 713	20		
	50	4864	473	7070	109	2857	510	.361 3708	9 709	10		
			473		108		510		9 705			Tangent
55	0	0 223 5337		0.974 6962		0 229 3367		4 360 4003		0	5	510 511
	10	5809	472	6854	108	3878	511	.359 4303	9 700	50		1 51 0 51 1
	20	6282	473	6745	109	4388	510	.358 4606	9 697	40		2 102 0 102 2
	30	6754	472	6637	108	4898	510	.357 4914	9 692	30		3 151 0 151 3
	40	7227	473	6528	109	5409	511	.356 5225	9 689	20		4 204 0 204 4
	50	7699	472	6420	108	5919	510	.355 5541	9 684	10		5 255 0 255 5
			473		109		510		9 680			6 306 0 306 6
56	0	0.223 8172		0.974 6311		0 229 6429		4 354 5861		0	4	7 357 0 357 7
	10	8644	472	6203	108	6940	511	.353 6185	9 676	50		8 408 0 408 8
	20	9117	473	6094	109	7450	510	.352 6513	9 672	40		9 459 0 459 9
	30	9589	472	5986	108	7961	511	.351 6845	9 668	30		
	40	0 224 0062	473	5877	109	8471	510	.350 7182	9 663	20		
	50	0534	472	5769	108	8982	511	.349 7522	9 660	10		
			473		109		510		9 656			Cotangent
57	0	0 224 1007		0 974 5660		0 229 9492		4 348 7866		0	3	9800 9700
	10	1479	472	5551	108	0 230 0002	510	.347 8215	9 651	50		1 980 0 970 0
	20	1952	473	5443	109	0513	511	.346 8567	9 648	40		2 1960 0 1960 0
	30	2424	472	5334	108	1023	510	.345 8924	9 643	30		3 2040 0 2040 0
	40	2897	473	5225	109	1534	511	.344 9285	9 639	20		4 3020 0 3880 0
	50	3369	472	5116	108	2044	510	.343 9649	9 636	10		5 4900 0 4850 0
			473		109		511		9 631			6 5880 0 5820 0
58	0	0 224 3842		0 974 5008		0 230 2555		4 343 0018		0	2	7 6860 0 6790 0
	10	4314	472	4899	109	3065	510	.342 0391	9 627	50		8 7840 0 7760 0
	20	4786	473	4790	108	3576	511	.341 0768	9 623	40		9 8820 0 8730 0
	30	5259	472	4681	109	4086	510	.340 1149	9 619	30		
	40	5731	473	4572	108	4597	511	.339 1534	9 615	20		
	50	6204	472	4464	109	5108	510	.338 1923	9 611	10		
			473		109		511		9 607			5 4800 0 4750 0
59	0	0 224 6676		0.974 4355		0 230 5618		4 337 2316		0	1	6 5760 0 5700 0
	10	7149	473	4246	109	6129	511	.336 2713	9 603	50		7 6720 0 6650 0
	20	7621	472	4137	108	6639	510	.335 3114	9 599	40		8 7680 0 7600 0
	30	8093	473	4028	109	7150	511	.334 3519	9 595	30		9 8640 0 8550 0
	40	8566	472	3919	108	7661	510	.333 3928	9 591	20		
	50	9038	473	3810	109	8171	511	.332 4341	9 587	10		
			473		109		511		9 582			
60	0	0 224 9511		0.974 3701		0 230 8682		4.331 4759		0	0	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

77° 00'

13° 0'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
0	0	0.224 9511		0.974 3701		0.230 8682		4.331 7459		0	60	
	10	9983	472	3592	109	9193	511	.330 5180	9 579	50		
	20	0 225 0455	472	3482	110	9703	510	.329 5605	9 575	40		
	30	0928	473	3373	109	0 231 0214	511	.328 6035	9 570	30		
	40	1400	472	3264	109	0725	511	.327 6468	9 567	20		
	50	1872	473	3155	109	1235	510	.326 6905	9 563	10		
							511		9 558	50		
1	0	0.225 2345		0.974 3046		0.231 1746		4.325 7347		0	59	Sine
	10	2817	472	2937	109	2257	511	.324 7792	9 555	50		472 473
	20	3289	472	2827	110	2768	511	.323 8241	9 551	40		1 47 2 47 3
	30	3762	473	2718	109	3278	510	.322 8695	9 546	30		2 94 4 94 6
	40	4234	472	2609	109	3789	511	.321 9152	9 543	20		3 141 6 141 9
	50	4706	472	2500	109	4300	511	.320 9614	9 538	10		4 188 8 189 2
			473		110		511		9 535	50		5 236 0 236 5
2	0	0.225 5179		0 974 2390		0.231 4811		4 320 0079		0	58	6 283 2 283 8
	10	5651	472	2281	109	5321	510	.319 0548	9 531	50		7 330 4 331 1
	20	6123	472	2172	109	5832	511	.318 1022	9 526	40		8 377 6 378 4
	30	6596	473	2062	110	6343	511	.317 1499	9 523	30		9 424 8 425 7
	40	7068	472	1953	109	6854	511	.316 1980	9 519	20		
	50	7540	472	1843	110	7365	511	.315 2466	9 514	10		
			473		109		511		9 511	50		Cosine
3	0	0.225 8013		0 974 1734		0 231 7876		4.314 2955		0	57	109 110 111
	10	8485	472	1624	110	8386	510	.313 3448	9 507	50		1 10 9 11 0 11 1
	20	8957	472	1515	109	8897	511	.312 3945	9 503	40		2 21 8 22 0 22 2
	30	9430	473	1405	110	9408	511	.311 4447	9 503	30		3 32 7 33 0 33 3
	40	9902	472	1296	109	9919	511	.310 4952	9 498	20		4 43 6 44 0 44 4
	50	0 226 0374	472	1186	110	0 232 0430	511	.309 5461	9 495	10		5 54 5 55 0 55 5
			473		109		511		9 491	50		6 65 4 66 0 66 6
4	0	0.226 0846		0.974 1077		0.232 0941		4 308 5974		0	56	7 76 3 77 0 77 7
	10	1319	473	0967	110	1452	511	.307 6491	9 487	50		8 87 2 88 0 88 8
	20	1791	472	0857	110	1963	511	.306 7012	9 479	40		9 98 1 99 0 99 9
	30	2263	472	0748	109	2474	511	.305 7537	9 475	30		
	40	2735	472	0638	110	2985	511	.304 8066	9 471	20		
	50	3208	473	0528	110	3496	511	.303 8599	9 467	10		
			472		109		511		9 463	50		Tangent
5	0	0.226 3680		0 974 0419		0 232 4007		4.302 9136		0	55	510 511 512
	10	4152	472	0309	110	4518	511	.301 9677	9 459	50		1 51 0 51 1 51 2
	20	4624	472	0199	110	5029	511	.301 0221	9 456	40		2 102 0 102 2 102 4
	30	5096	473	0089	110	5540	511	.300 0770	9 451	30		3 153 0 153 3 153 6
	40	5569	472	0 973 9979	109	6051	511	.299 1323	9 447	20		4 204 0 204 4 204 8
	50	6041	472	9870	110	6562	511	.298 1879	9 441	10		5 255 0 255 5 256 0
									9 439	50		6 306 0 306 6 307 2
6	0	0.226 6513		0 973 9760		0 232 7073		4 297 2440		0	54	7 357 0 357 7 358 4
	10	6985	472	9650	110	7584	511	.296 3004	9 436	50		8 408 0 408 8 409 6
	20	7457	472	9540	110	8095	511	.295 3573	9 431	40		9 459 0 459 9 460 8
	30	7930	473	9430	110	8606	511	.294 4145	9 428	30		
	40	8402	472	9320	110	9117	511	.293 4721	9 424	20		Cotangent
	50	8874	472	9210	110	9628	512	.292 5301	9 420	10		9600 9500
									9 416	50		1 960 0 950 0
7	0	0.226 9346		0 973 9100		0.233 0140		4 291 5885		0	53	2 1920 0 1900 0
	10	9818	472	8990	110	0651	511	.290 6473	9 412	50		3 2880 0 2850 0
	20	0 227 0290	472	8880	110	1162	511	.289 7065	9 408	40		4 3840 0 3800 0
	30	0763	473	8770	110	1673	511	.288 7661	9 404	30		5 4800 0 4750 0
	40	1235	472	8660	110	2184	511	.287 8261	9 400	20		6 5760 0 5700 0
	50	1707	472	8550	110	2695	511	.286 8864	9 397	10		7 6720 0 6650 0
			472		111		512		9 393	50		8 7680 0 7600 0
8	0	0.227 2179		0 973 8439		0 233 3207		4 285 9472		0	52	9 8640 0 8550 0
	10	2651	472	8329	110	3718	511	.285 0083	9 389	50		9400 9300
	20	3123	472	8219	110	4229	511	.284 0699	9 384	40		1 940 0 930 0
	30	3595	473	8109	110	4740	511	.283 1318	9 381	30		2 1880 0 1860 0
	40	4068	472	7999	111	5251	512	.282 1941	9 377	20		3 2820 0 2790 0
	50	4540	472	7888	110	5763	511	.281 2568	9 373	10		4 3760 0 3720 0
									9 369	50		5 4700 0 4650 0
9	0	0.227 5012		0.973 7778		0.233 6274		4.280 3199		0	51	6 5640 0 5580 0
	10	5484	472	7668	110	6785	511	.279 3834	9 365	50		7 6580 0 6510 0
	20	5956	472	7557	111	7297	512	.278 4472	9 362	40		8 7520 0 7440 0
	30	6428	472	7447	110	7808	511	.277 5115	9 357	30		9 8460 0 8370 0
	40	6900	472	7337	111	8319	511	.276 5761	9 354	20		
	50	7372	472	7226	111	8831	512	.275 6412	9 349	10		
			472		110		511		9 346	50		
10	0	0.227 7844		0 973 7116		0.233 9342		4 274 7066		0	50	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

76° 50'

13° 10'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
10	0	0.227 7844		0.973 7116		0.233 9342		4.274 7066		0	50	
	10	8316	472	7005	111	9853	511	.273 7724	9 342	50		
	20	8788	472	6895	110	0.234 0365	512	.272 8386	9 338	40		
	30	9260	472	6784	111	0876	511	.271 9052	9 334	30		
	40	9732	472	6674	110	1387	511	.270 9721	9 331	20		
	50	0 228 0205	473	6563	111	1899	512	.270 0395	9 326	10		
			472		110		512		9 323			
11	0	0 228 0677		0 973 6463		0.234 2411		4.269 1072		0	49	
	10	1149	472	6342	111	2922	511	.268 1754	9 318	50		Sine
	20	1621	472	6232	110	3433	511	.267 2439	9 315	40		471 472 473
	30	2093	472	6121	111	3944	511	.266 3128	9 311	30		1 47 1 47 2 47 3
	40	2565	472	6010	111	4456	512	.265 3820	9 308	20		2 94 2 94 4 94 6
	50	3037	472	5900	110	4967	511	.264 4517	9 303	10		3 141 3 141 6 141 9
			472		111		512		9 299			4 188 4 188 8 189 2
12	0	0.228 3509		0.973 5789		0.234 5479		4.263 5218		0	48	
	10	3981	472	5678	111	5990	511	.262 5922	9 296	50		5 235 5 236 0 236 5
	20	4453	472	5568	110	6502	512	.261 6630	9 292	40		6 282 6 283 2 283 8
	30	4925	472	5457	111	7013	511	.260 7342	9 288	30		7 329 7 330 4 331 1
	40	5397	472	5346	111	7525	512	.259 8058	9 284	20		8 376 8 377 6 378 4
	50	5869	472	5235	111	8036	511	.258 8778	9 280	10		9 423 9 424 8 425 7
			472		111		512		9 277			
13	0	0.228 6341		0.973 5124		0.234 8548		4.257 9501		0	47	
	10	6813	472	5014	110	9060	512	.257 0229	9 272	50		Cosine
	20	7285	472	4903	111	9571	511	.256 0960	9 269	40		110 111 112
	30	7757	472	4792	111	0 235 0083	512	.255 1695	9 265	30		1 11 0 11 1 11 2
	40	8228	471	4681	111	0594	511	.254 2434	9 261	20		2 22 0 22 2 22 4
	50	8700	472	4570	111	1106	512	.253 3176	9 258	10		3 33 0 33 3 33 6
			472		111		511		9 253			4 44 0 44 4 44 8
14	0	0 228 9172		0.973 4459		0.235 1617		4.252 3923		0	46	
	10	9644	472	4348	111	2129	512	.251 4673	9 250	50		5 55 0 55 5 56 0
	20	0 229 0116		4237	111	2641	512	.250 5427	9 246	40		6 66 0 66 6 67 2
	30	0588	472	4126	111	3152	511	.249 6185	9 242	30		7 77 0 77 7 78 4
	40	1060	472	4015	111	3664	512	.248 6947	9 238	20		8 88 0 88 8 89 6
	50	1532	472	3904	111	4176	511	.247 7712	9 235	10		9 99 0 99 9 100 8
			472		111		511		9 230			
15	0	0 229 2004		0.973 3793		0.235 4687		4.246 8482		0	45	
	10	2476	472	3681	112	5199	512	.245 9255	9 227	50		Tangent
	20	2948	472	3570	111	5711	512	.245 0032	9 223	40		511 512 513
	30	3420	471	3459	111	6223	511	.244 0812	9 220	30		1 102 2 102 1 102 6
	40	3891	472	3348	111	6734	512	.243 1597	9 215	20		2 153 3 153 6 153 9
	50	4363	472	3237	112	7246	512	.242 2385	9 212	10		3 204 4 204 8 205 2
			472		112		512		9 208			4 255 5 256 0 256 5
16	0	0.229 4835		0.973 3125		0.235 7768		4.241 3177		0	44	
	10	5307	472	3014	111	8270	512	.240 3973	9 204	50		5 306 6 307 2 307 8
	20	5779	472	2903	111	8781	511	.239 4773	9 200	40		6 357 7 358 4 359 1
	30	6251	472	2792	112	9293	512	.238 5576	9 197	30		7 408 8 409 6 410 4
	40	6723	472	2680	111	9805	512	.237 6383	9 193	20		8 459 9 460 8 461 7
	50	7195	471	2569	111	0 236 0317	512	.236 7194	9 189	10		
			471		111		512		9 185			
17	0	0 229 7666		0.973 2458		0.236 0829		4.235 8009		0	43	
	10	8138	472	2346	112	1340	511	.234 8828	9 181	50		Cotangent
	20	8610	472	2235	111	1852	512	.233 9650	9 178	40		9400 9300
	30	9082	472	2123	112	2364	512	.233 0476	9 174	30		1 940 0 930 0
	40	9554	472	2012	111	2876	512	.232 1306	9 170	20		2 1880 0 1860 0
	50	0 230 0026	471	1900	111	3388	512	.231 2140	9 166	10		3 2820 0 2790 0
			471		111		512		9 163			4 3760 0 3720 0
18	0	0.230 0497		0.973 1789		0.236 3900		4.230 2977		0	42	
	10	0969	472	1677	112	4412	512	.229 3818	9 159	50		5 4700 0 4650 0
	20	1441	472	1566	111	4924	512	.228 4663	9 155	40		6 5640 0 5580 0
	30	1913	472	1454	112	5436	512	.227 5512	9 151	30		7 6580 0 6510 0
	40	2385	471	1342	111	5948	512	.226 6364	9 148	20		8 7520 0 7440 0
	50	2856	472	1231	112	6460	511	.225 7220	9 144	10		9 8460 0 8370 0
			472		112		511		9 140			
19	0	0.230 3328		0 973 1119		0.236 6971		4.224 8080		0	41	
	10	3800	472	1007	112	7483	512	.223 8944	9 136	50		9200 9100
	20	4272	472	0896	111	7995	512	.222 9811	9 133	40		1 920 0 910 0
	30	4743	471	0784	112	8507	512	.222 0682	9 129	30		2 1840 0 1820 0
	40	5215	472	0672	111	9019	512	.221 1557	9 125	20		3 2760 0 2730 0
	50	5687	472	0561	112	9531	513	.220 2435	9 122	10		4 3680 0 3640 0
			472		112		513		9 117			5 4600 0 4550 0
20	0	0.230 6159		0.973 0449		0.237 0044		4.219 3318		0	40	
												6 5520 0 5460 0
												7 6440 0 6370 0
												8 7360 0 7280 0
												9 8280 0 8190 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

76° 40'

13° 20'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
20	0	0.230 6169		0.973 0449		0.237 0044		4 219 3318		0	40	
	10	6630	471	0337	112	0556	512	.218 4204	9 114	50		Sine
	20	7102	472	0225	112	1068	512	217 5094	9 110	40		471 472
	30	7574	472	0113	112	1580	512	216 5987	9 107	30		1 47 1 47 2
	40	8046	472	0001	112	2092	512	.215 6884	9 103	20		2 94 2 94 4
	50	8517	471	0.972 9889	112	2604	512	214 7785	9 099	10		3 141 3 141 6
			472						9 095			4 188 4 188 8
21	0	0.230 8989		0.972 9777		0.237 3116		4 213 8690		0	39	
	10	9461	472	9666	111	3628	512	.212 9598	9 092	50		5 235 5 236 0
	20	9932	471	9554	112	4140	512	.212 0510	9 088	40		6 282 6 283 2
	30	0 231 0404	472	9442	112	4652	512	.211 1426	9 084	30		7 329 7 330 4
	40	0876	472	9330	113	5165	512	.210 2345	9 081	20		8 376 8 377 6
	50	1348	471	9217	112	5677	512	.209 3269	9 076	10		9 423 9 424 8
									9 073			
22	0	0.231 1819		0.972 9105		0.237 6189		4 208 4196		0	38	
	10	2291	472	8993	112	6701	512	207 5126	9 070	50		Cosine
	20	2763	472	8881	112	7213	512	206 6060	9 066	40		111 112
	30	3234	471	8769	112	7726	512	205 6998	9 062	30		1 11 1 11 2
	40	3706	472	8657	112	8238	512	204 7940	9 058	20		2 22 2 22 4
	50	4178	471	8545	113	8750	512	203 8886	9 054	10		3 33 3 33 6
									9 051			4 44 4 44 8
23	0	0 231 4649		0 972 8432		0 237 9262		4.202 9835		0	37	
	10	5121	472	8320	112	9775	513	.202 0787	9 048	50		5 55 5 56 0
	20	5593	472	8208	112	0 238 0287	512	.201 1744	9 043	40		6 66 6 67 2
	30	6064	471	8096	112	0799	512	.200 2704	9 040	30		7 77 7 78 4
	40	6536	472	7983	113	1311	512	.199 3668	9 036	20		8 88 8 89 6
	50	7007	471	7871	112	1824	512	.198 4635	9 033	10		9 99 9 100 8
			472						9 029			
24	0	0 231 7479		0 972 7769		0 238 2336		4 197 5606		0	36	
	10	7951	472	7646	113	2848	512	.196 6581	9 025	50		113 114
	20	8422	471	7534	112	3361	513	.195 7560	9 021	40		1 11 3 11 4
	30	8894	472	7422	112	3873	512	.194 8542	9 018	30		2 22 6 22 8
	40	9365	471	7309	113	4385	512	.193 9528	9 014	20		3 33 9 34 2
	50	9837	472	7197	112	4898	513	.193 0517	9 011	10		4 45 2 45 6
									9 007			5 56 5 57 0
25	0	0.232 0309		0 972 7084		0.238 5410		4.192 1510		0	35	
	10	0780	471	6972	112	5923	513	.191 2507	9 003	50		Tangent
	20	1252	472	6859	113	6435	512	.190 3508	8 999	40		512 513
	30	1723	471	6747	112	6947	512	.189 4512	8 996	30		1 51 2 51 3
	40	2195	472	6634	113	7460	513	.188 5520	8 992	20		2 102 4 102 6
	50	2666	471	6521	112	7972	512	.187 6531	8 989	10		3 153 6 153 9
			472						8 985			4 204 8 205 2
26	0	0 232 3138		0 972 6409		0 238 8485		4 186 7546		0	34	
	10	3610	472	6296	113	8997	512	.185 8565	8 981	50		5 256 0 256 5
	20	4081	471	6184	112	9510	513	.184 9587	8 978	40		6 307 2 307 8
	30	4553	472	6071	113	0.239 0022	512	.184 0614	8 973	30		7 358 4 359 1
	40	5024	471	5958	112	0535	513	.183 1643	8 971	20		8 409 6 410 1
	50	5496	472	5845	113	1047	512	.182 2677	8 966	10		9 460 8 461 7
			471						8 964			
27	0	0 232 5967		0 972 5733		0.239 1560		4.181 3713		0	33	
	10	6439	472	5620	113	2072	512	.180 4754	8 959	50		Cotangent
	20	6910	471	5507	112	2585	513	.179 5798	8 956	40		9100 9000
	30	7382	472	5394	113	3098	512	.178 6846	8 952	30		1 910 0 900 0
	40	7853	471	5281	112	3610	513	.177 7898	8 948	20		2 1820 0 1800 0
	50	8325	472	5169	113	4123	512	.176 8953	8 945	10		3 2730 0 2700 0
			471						8 942			4 3640 0 3600 0
28	0	0.232 8796		0.972 5066		0.239 4635		4 176 0011		0	32	
	10	9268	472	4943	113	5148	513	.175 1074	8 937	50		5 4550 0 4500 0
	20	9739	471	4830	112	5661	512	.174 2140	8 934	40		6 5160 0 5100 0
	30	0 233 0211	472	4717	113	6173	513	.173 3209	8 931	30		7 6370 0 6300 0
	40	0682	471	4604	112	6686	512	.172 4282	8 927	20		8 7280 0 7200 0
	50	1154	472	4491	113	7199	513	.171 5359	8 923	10		9 8190 0 8100 0
			471						8 919			
29	0	0.233 1625		0.972 4378		0.239 7711		4.170 6440		0	31	
	10	2096	471	4265	113	8224	513	.169 7524	8 916	50		8900 8800
	20	2568	472	4152	112	8737	512	.168 8611	8 913	40		1 890 0 880 0
	30	3039	471	4039	113	9249	513	.167 9702	8 909	30		2 1780 0 1760 0
	40	3511	472	3926	112	9762	512	.167 0797	8 905	20		3 2670 0 2640 0
	50	3982	471	3812	113	0 240 0275	513	.166 1896	8 901	10		4 3560 0 3520 0
			472						8 898			5 4450 0 4400 0
30	0	0.233 4454		0.972 3699		0.240 0788		4.165 2998		0	30	
												6 5340 0 5280 0
												7 6230 0 6160 0
												8 7120 0 7040 0
												9 8010 0 7920 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

76° 30'

13° 30'

	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
30	0	0.233 4454		0.972 3699		0.240 0788		4 165 2998		0	30	
	10	4925	471	3586	113	1300	512	.164 4103	8 895	50		
	20	5396	471	3473	113	1813	513	.163 5212	8 891	40		
	30	5868	472	3360	113	2326	513	.162 6325	8 887	30		
	40	6339	472	3246	114	2839	513	.161 7442	8 883	20		
	50	6811	472	3133	113	3352	513	.160 8562	8 880	10		
			471		113		512		8 877			
31	0	0.233 7282		0.972 3020		0.240 3864		4.159 9685		0	29	
	10	7753	471	2906	114	4377	513	.159 0812	8 873	50		
	20	8225	472	2793	113	4890	513	.158 1943	8 869	40		
	30	8696	471	2680	113	5403	513	.157 3077	8 866	30		
	40	9168	472	2566	114	5916	513	.156 4215	8 862	20		
	50	9639	471	2453	113	6429	513	.155 5356	8 859	10		
			471		114		513		8 855			
32	0	0.234 0110		0.972 2339		0.240 6942		4.154 6501		0	28	
	10	0582	472	2226	113	7454	512	.153 7650	8 851	50		
	20	1053	471	2112	114	7967	513	.152 8802	8 848	40		
	30	1524	471	1999	113	8480	513	.151 9958	8 844	30		
	40	1996	472	1885	114	8993	513	.151 1117	8 841	20		
	50	2467	471	1772	113	9506	513	.150 2280	8 837	10		
			471		114		513		8 834			
33	0	0.234 2938		0.972 1658		0.241 0019		4.149 3446		0	27	
	10	3410	472	1545	113	0532	513	.148 4616	8 830	50		
	20	3881	471	1431	114	1045	513	.147 5789	8 827	40		
	30	4352	471	1317	113	1558	513	.146 6966	8 823	30		
	40	4824	472	1204	113	2071	513	.145 8147	8 819	20		
	50	5295	471	1090	114	2584	513	.144 9331	8 816	10		
			471		114		513		8 812			
34	0	0.234 5766		0.972 0976		0.241 3097		4.144 0519		0	26	
	10	6237	471	0863	113	3610	513	.143 1710	8 809	50		
	20	6709	472	0749	114	4123	513	.142 2905	8 805	40		
	30	7180	471	0635	114	4636	513	.141 4103	8 802	30		
	40	7651	471	0521	114	5149	513	.140 5305	8 798	20		
	50	8122	471	0407	114	5663	514	.139 6510	8 795	10		
			472		113		513		8 791			
35	0	0.234 8594		0.972 0294		0.241 6176		4.138 7719		0	25	
	10	9065	471	0180	114	6689	513	.137 8931	8 788	50		
	20	9536	471	0066	114	7202	513	.137 0147	8 784	40		
	30	0.235 0007	472	0.971 9952	114	7715	513	.136 1366	8 781	30		
	40	0479	471	9838	114	8228	513	.135 2589	8 777	20		
	50	0950	471	9724	114	8741	513	.134 3816	8 773	10		
			471		114		514		8 770			
36	0	0.235 1421		0.971 9610		0.241 9255		4.133 5046		0	24	
	10	1892	471	9496	114	9768	513	.132 6279	8 767	50		
	20	2364	472	9382	114	0.242 0281	513	.131 7516	8 763	40		
	30	2835	471	9268	114	0794	513	.130 8757	8 759	30		
	40	3306	471	9154	114	1307	513	.130 0001	8 756	20		
	50	3777	471	9040	114	1821	514	.129 1248	8 753	10		
			471		114		513		8 749			
37	0	0.235 4248		0.971 8926		0.242 2334		4.128 2499		0	23	
	10	4720	472	8811	115	2847	513	.127 3754	8 745	50		
	20	5191	471	8697	114	3361	514	.126 5012	8 742	40		
	30	5662	471	8583	114	3874	513	.125 6273	8 739	30		
	40	6133	471	8469	114	4387	513	.124 7538	8 735	20		
	50	6604	471	8355	115	4900	513	.123 8807	8 731	10		
			471		115		514		8 728			
38	0	0.235 7075		0.971 8240		0.242 5414		4.123 0079		0	22	
	10	7547	472	8126	114	5927	513	.122 1354	8 725	50		
	20	8018	471	8012	114	6440	513	.121 2633	8 721	40		
	30	8489	471	7897	115	6954	514	.120 3916	8 717	30		
	40	8960	471	7783	114	7467	513	.119 5202	8 714	20		
	50	9431	471	7669	115	7981	514	.118 6491	8 711	10		
			471		115		513		8 707			
39	0	0.235 9902		0.971 7554		0.242 8494		4.117 7784		0	21	
	10	0.236 0373	471	7440	114	9007	513	.116 9080	8 704	50		
	20	0844	471	7325	115	9521	514	.116 0380	8 700	40		
	30	1316	472	7211	114	0.243 0034	513	.115 1684	8 696	30		
	40	1787	471	7096	115	0548	514	.114 2990	8 694	20		
	50	2258	471	6982	114	1061	513	.113 4301	8 689	10		
			471		115		514		8 687			
40	0	0.236 2729		0.971 6867		0.243 1575		4.112 5614		0	20	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

76° 20'

13° 40'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
40	0	0.236 2729		0.971 6867		0.243 1575		4.112 5614		0	20	
	10	3200	471	6753	114	2088	513	.111 6932	8 682	50		
	20	3671	471	6638	115	2602	514	.110 8252	8 680	40		
	30	4142	471	6524	114	3115	513	.109 9576	8 676	30		
	40	4613	471	6409	115	3629	514	.109 0904	8 672	20		
	50	5084	471	6294	115	4142	513	.108 2235	8 669	10		
			471		114		514		8 666			
41	0	0.236 5555		0.971 6180		0.243 4656		4.107 3569		0	19	Sine
	10	6026	471	6065	115	5169	513	.106 4907	8 662	50		470 471
	20	6497	471	5950	115	5683	514	.105 6249	8 658	40		1 47 0 47 1
	30	6968	471	5836	114	6196	513	.104 7593	8 656	30		2 94 0 94 2
	40	7439	471	5721	115	6710	514	.103 8942	8 651	20		3 141 0 141 3
	50	7910	471	5606	115	7224	514	.103 0293	8 649	10		4 188 0 188 4
			471		115		513		8 644			5 235 0 235 5
42	0	0.236 8381		0.971 5491		0.243 7737		4.102 1649		0	18	6 282 0 282 6
	10	8852	471	5376	115	8251	514	.101 3007	8 642	50		7 329 0 329 7
	20	9323	471	5262	114	8765	514	.100 4369	8 638	40		8 376 0 376 8
	30	9794	471	5147	115	9278	513	.099 5735	8 634	30		9 423 0 423 9
	40	0 237 0265	471	5032	115	9792	514	.098 7104	8 631	20		
	50	0736	471	4917	115	0 244 0306	514	.097 8476	8 628	10		
			471		115		513		8 624			Cosine
43	0	0.237 1207		0.971 4802		0.244 0813		4.096 9852		0	17	114 115 116
	10	1678	471	4687	115	1333	514	.096 1231	8 621	50		1 11 4 11 5 11 6
	20	2149	471	4572	115	1847	514	.095 2613	8 618	40		2 22 8 23 0 23 2
	30	2620	471	4457	115	2360	513	.094 3999	8 614	30		3 34 2 34 5 34 8
	40	3091	471	4342	115	2874	514	.093 5389	8 610	20		4 45 6 46 0 46 4
	50	3562	471	4227	115	3388	514	.092 6782	8 607	10		5 57 0 57 5 58 0
			471		115		514		8 604			6 68 4 69 0 69 6
44	0	0.237 4033		0.971 4112		0.244 3902		4 091 8178		0	16	7 79 8 80 5 81 2
	10	4504	471	3997	115	4415	513	.090 9577	8 601	50		8 91 2 92 0 92 8
	20	4975	471	3881	116	4929	514	.090 0981	8 596	40		9 102 6 103 5 104 4
	30	5446	471	3766	115	5443	514	.089 2387	8 594	30		
	40	5917	471	3651	115	5957	514	.088 3797	8 590	20		Tangent
	50	6388	471	3536	115	6471	514	.087 5210	8 587	10		513 514 515
			471		115		513		8 583			1 51 3 51 4 51 5
45	0	0.237 6859		0.971 3421		0.244 6984		4.086 6627		0	15	2 102 6 102 8 103 0
	10	7330	471	3305	116	7498	514	.085 8047	8 580	50		3 151 9 151 2 151 5
	20	7801	471	3190	115	8012	514	.084 9471	8 576	40		4 205 2 205 6 206 0
	30	8272	471	3075	115	8526	514	.084 0897	8 574	30		5 256 5 257 0 257 5
	40	8743	471	2960	115	9040	514	.083 2328	8 569	20		6 307 8 308 4 309 0
	50	9213	470	2844	116	9554	514	.082 3761	8 567	10		7 359 1 359 8 360 5
			471		115		514		8 562			8 410 4 411 2 412 0
46	0	0 237 9684		0.971 2729		0.245 0068		4.081 5199		0	14	9 461 7 462 6 463 5
	10	0 238 0155	471	2614	115	0582	514	.080 6639	8 560	50		
	20	0626	471	2498	116	1096	514	.079 8083	8 556	40		Cotangent
	30	1097	471	2383	115	1610	514	.078 9530	8 553	30		8700 8600
	40	1568	471	2267	116	2123	513	.078 0981	8 549	20		1 870 0 860 0
	50	2039	471	2152	115	2637	514	.077 2435	8 546	10		2 1740 0 1730 0
			471		116		514		8 543			3 2610 0 2580 0
47	0	0.238 2510		0.971 2036		0.245 3151		4 076 3892		0	13	4 3480 0 3440 0
	10	2980	470	1921	115	3665	514	.075 5353	8 539	50		5 4350 0 4300 0
	20	3451	471	1805	116	4179	514	.074 6817	8 536	40		6 5220 0 5160 0
	30	3922	471	1690	115	4693	514	.073 8284	8 533	30		7 6090 0 6020 0
	40	4393	471	1574	116	5207	514	.072 9755	8 529	20		8 6960 0 6880 0
	50	4864	471	1458	116	5722	515	.072 1230	8 525	10		9 7830 0 7740 0
			471		115		514		8 523			
48	0	0 238 5335		0.971 1343		0.245 6236		4.071 2707		0	12	8500 8400
	10	5805	470	1227	116	6750	514	.070 4188	8 519	50		1 850 0 840 0
	20	6276	471	1111	116	7264	514	.069 5672	8 516	40		2 1700 0 1680 0
	30	6747	471	0996	115	7778	514	.068 7160	8 512	30		3 2550 0 2520 0
	40	7218	471	0880	116	8292	514	.067 8651	8 509	20		4 3400 0 3360 0
	50	7689	470	0764	116	8806	514	.067 0146	8 505	10		5 4250 0 4200 0
			471		115		514		8 503			6 5100 0 5040 0
49	0	0 238 8169		0.971 0649		0.245 9320		4.066 1643		0	11	7 5950 0 5880 0
	10	8630	471	0533	116	9834	514	.065 3144	8 499	50		8 6800 0 6720 0
	20	9101	471	0417	116	0 246 0348	514	.064 4649	8 495	40		9 7650 0 7560 0
	30	9572	471	0301	116	0863	515	.063 6157	8 492	30		
	40	0 239 0042	470	0185	116	1377	514	.062 7668	8 489	20		
	50	0513	471	0069	116	1891	514	.061 9182	8 486	10		
			471		115		514		8 482			
50	0	0.239 0984		0.970 9953		0.246 2405		4.061 0700		0	10	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff			Proportional Parts

76° 10'

13° 50'

	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
50	0	0.239 0984		0.970 9953		0.246 2405		4.061 0700		0	10	
	10	1455	471	9837	116	2919	514	.060 2221	8 479	50		Sine
	20	1925	470	9722	115	3434	515	.059 3746	8 475	40		470 471
	30	2396	471	9606	116	3948	514	.058 5274	8 472	30		1 47 0 47 1
	40	2867	471	9490	116	4462	514	.057 6805	8 469	20		2 94 0 94 2
	50	3338	470	9374	116	4976	515	.056 8339	8 466	10		3 141 0 141 3
51	0	0.239 3808		0.970 9258		0.246 5491		4.055 9877		0	9	4 188 0 188 4
	10	4279	471	9141	117	6005	514	.055 1418	8 459	50		5 235 0 235 5
	20	4750	471	9025	116	6519	514	.054 2963	8 455	40		6 282 0 282 6
	30	5221	471	8909	116	7034	515	.053 4511	8 452	30		7 329 0 329 7
	40	5691	470	8793	116	7548	514	.052 6062	8 449	20		8 376 0 376 8
	50	6162	471	8677	116	8062	514	.051 7616	8 446	10		9 423 0 423 9
52	0	0.239 6633		0.970 8561		0.246 8577		4.050 9174		0	8	Cosine
	10	7103	470	8445	116	9091	514	.050 0735	8 439	50		115 116
	20	7574	471	8328	117	9605	514	.049 2299	8 436	40		1 11 5 11 6
	30	8045	471	8212	116	0 247 0120	515	.048 3867	8 432	30		2 23 0 23 2
	40	8515	470	8096	116	0634	514	.047 5438	8 429	20		3 34 5 34 8
	50	8986	471	7980	116	1149	515	.046 7012	8 426	10		4 46 0 46 4
53	0	0.239 9457		0.970 7863		0.247 1663		4.045 8590		0	7	5 57 5 58 0
	10	9927	470	7747	116	2177	514	.045 0170	8 420	50		6 69 0 69 6
	20	0 240 0398	471	7630	117	2692	515	.044 1755	8 415	40		7 80 5 81 2
	30	0869	470	7514	116	3206	514	.043 3343	8 412	30		8 92 0 92 8
	40	1339	471	7398	116	3721	515	.042 4934	8 409	20		9 103 5 104 4
	50	1810	471	7281	117	4235	514	.041 6528	8 406	10		117 118
54	0	0.240 2280		0.970 7165		0.247 4750		4.040 8125		0	6	1 11 7 11 8
	10	2751	471	7048	117	5264	514	.039 9726	8 399	50		2 23 4 23 6
	20	3222	471	6932	116	5779	515	.039 1330	8 396	40		3 35 1 35 4
	30	3692	471	6815	117	6293	514	.038 2937	8 393	30		4 46 8 47 2
	40	4163	471	6699	116	6808	515	.037 4548	8 389	20		5 58 5 59 0
	50	4633	470	6582	117	7322	514	.036 6162	8 386	10		6 70 2 70 8
55	0	0.240 5104		0.970 6466		0.247 7837		4.035 7779		0	5	7 81 9 82 6
	10	5575	471	6349	117	8352	515	.034 9399	8 380	50		8 93 6 94 4
	20	6045	470	6232	117	8866	514	.034 1023	8 376	40		9 105 3 106 2
	30	6516	471	6116	116	9381	515	.033 2650	8 373	30		Tangent
	40	6986	471	5999	117	9895	514	.032 4280	8 370	20		514 515
	50	7457	470	5882	116	0.248 0410	515	.031 5914	8 366	10		1 51 4 51 5
56	0	0.240 7927		0.970 5766		0.248 0925		4.030 7550		0	4	2 102 8 103 0
	10	8398	471	5649	117	1439	514	.029 9190	8 360	50		3 154 2 154 5
	20	8869	471	5532	117	1954	515	.029 0834	8 356	40		4 205 6 206 0
	30	9339	470	5415	117	2469	514	.028 2480	8 354	30		5 257 0 257 5
	40	9810	471	5298	117	2983	515	.027 4130	8 350	20		6 308 4 309 0
	50	0 241 0280	470	5182	117	3498	514	.026 5783	8 347	10		7 359 8 360 5
57	0	0.241 0751		0.970 5065		0.248 4013		4.025 7440		0	3	8 111 2 412 0
	10	1221	470	4948	117	4528	515	.024 9099	8 341	50		9 162 6 463 5
	20	1692	471	4831	117	5042	514	.024 0762	8 337	40		Cotangent
	30	2162	470	4714	117	5557	515	.023 2428	8 334	30		8500 8400
	40	2633	471	4597	117	6072	514	.022 4098	8 330	20		1 850 0 840 0
	50	3103	470	4480	117	6587	515	.021 5770	8 328	10		2 1700 0 1680 0
58	0	0.241 3574		0.970 4363		0.248 7102		4.020 7446		0	2	3 2550 0 2520 0
	10	4044	470	4246	117	7616	514	.019 9125	8 324	50		4 3400 0 3360 0
	20	4515	471	4129	117	8131	515	.019 0808	8 321	40		5 4250 0 4200 0
	30	4985	470	4012	117	8646	514	.018 2493	8 317	30		6 5100 0 5040 0
	40	5455	471	3895	117	9161	515	.017 4182	8 315	20		7 5950 0 5880 0
	50	5926	470	3778	117	9676	514	.016 5874	8 311	10		8 6800 0 6720 0
59	0	0.241 6396		0.970 3661		0.249 0191		4.015 7570		0	1	9 7650 0 7560 0
	10	6867	471	3543	118	0705	514	.014 9268	8 308	50		8300 8200
	20	7337	470	3426	117	1220	515	.014 0970	8 304	40		1 830 0 820 0
	30	7808	471	3309	117	1735	514	.013 2675	8 302	30		2 1660 0 1640 0
	40	8278	470	3192	117	2250	515	.012 4383	8 298	20		3 2490 0 2460 0
	50	8749	471	3075	117	2765	514	.011 6095	8 295	10		4 3320 0 3280 0
60	0	0.241 9219		0.970 2957		0.249 3280		4.010 7809		0	0	5 4150 0 4100 0
									8 288	40		6 4980 0 4920 0
									8 286	30		7 5810 0 5740 0
										20		8 6640 0 6560 0
										10		9 7470 0 7380 0
												Proportional Parts

76° 00'

14° 0'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
0	0	0.241 9219		0.970 2957		0.249 3280		4.010 7809		0	60	
	10	9689	470	2840	117	3795	515	009 9527	8 282	50		
	20	0 242 0160	470	2723	118	4310	515	009 1248	8 275	40		
	30	0630	470	2605	117	4825	515	.008 2973	8 273	30		
	40	1101	470	2488	117	5340	515	007 4700	8 269	20		
	50	1571	470	2371	118	5855	515	.006 6431	8 266	10		
1	0	0.242 2041		0.970 2253		0.249 6370		4.005 8165		0	59	
	10	2512	471	2136	117	6885	515	.004 9902	8 263	50		Sine
	20	2982	470	2018	118	7400	515	004 1643	8 259	40		470 471
	30	3452	470	1901	117	7915	515	003 3386	8 257	30		1 47 0 47 1
	40	3923	471	1783	118	8430	515	.002 5133	8 253	20		2 94 0 94 2
	50	4393	470	1666	117	8945	515	.001 6883	8 250	10		3 141 0 141 3
2	0	0.242 4863		0.970 1548		0.249 9460		4.000 8636		0	58	
	10	5334	471	1431	117	9975	515	000 0393	8 243	50		4 188 0 188 4
	20	5804	470	1313	118	0 250 0491	516	3 999 2152	8 241	40		5 235 0 235 5
	30	6275	471	1195	117	1006	515	.998 3915	8 237	30		6 282 0 282 6
	40	6745	470	1078	118	1521	515	.997 5681	8 234	20		7 329 0 329 7
	50	7215	470	0960	118	2036	515	.996 7450	8 231	10		8 376 0 376 8
3	0	0.242 7685		0.970 0842		0.250 2551		3.995 9223		0	57	
	10	8156	471	0725	117	3066	515	.995 0998	8 225	50		9 423 0 423 9
	20	8626	470	0607	118	3582	515	.994 2777	8 221	40		Cosine
	30	9096	471	0489	118	4097	515	993 4559	8 218	30		117 118 119
	40	9567	470	0371	117	4612	515	.992 6344	8 215	20		1 11 7 11 8 11 9
	50	0 243 0037	470	0254	118	5127	515	.991 8132	8 212	10		2 23 4 23 6 23 8
4	0	0.243 0507		0.970 0136		0.250 5642		3.990 9924		0	56	
	10	0977	470	0018	118	6158	516	.990 1719	8 205	50		3 35 1 35 4 35 7
	20	1448	471	0.969 9900	118	6673	515	.989 3516	8 203	40		4 46 8 47 2 47 6
	30	1918	470	9782	118	7188	515	.988 5317	8 199	30		5 58 5 59 0 59 5
	40	2388	470	9664	118	7704	516	.987 7122	8 195	20		6 70 2 70 8 71 4
	50	2859	471	9546	118	8219	515	.986 8929	8 193	10		7 81 9 82 6 83 3
5	0	0.243 3329		0.969 9428		0.250 8734		3.986 0739		0	55	
	10	3799	470	9310	118	9250	516	.985 2553	8 186	50		8 93 6 94 4 95 2
	20	4269	470	9192	118	9765	515	.984 4370	8 183	40		9 105 3 106 2 107 1
	30	4739	470	9074	118	0.251 0280	515	983 6190	8 180	30		Tangent
	40	5210	471	8956	118	0796	516	.982 8013	8 177	20		515 516
	50	5680	470	8838	118	1311	515	.981 9839	8 174	10		1 51 5 51 6
6	0	0.243 6150		0.969 8720		0.251 1826		3.981 1669		0	54	
	10	6620	470	8602	118	2342	516	.980 3501	8 168	50		2 103 0 103 2
	20	7091	471	8484	118	2857	515	.979 5337	8 164	40		3 154 5 154 8
	30	7561	470	8366	118	3373	515	.978 7176	8 161	30		4 206 0 206 4
	40	8031	470	8248	119	3888	516	.977 9018	8 158	20		5 257 5 258 0
	50	8501	470	8129	118	4404	515	.977 0863	8 155	10		6 309 0 309 6
7	0	0.243 8971		0.969 8011		0.251 4919		3.976 2712		0	53	
	10	9441	470	7893	118	5435	516	.975 4563	8 149	50		7 360 5 361 2
	20	9912	471	7775	119	5950	515	.974 6418	8 145	40		8 412 0 412 8
	30	0.244 0382	470	7656	118	6466	516	.973 8276	8 142	30		9 463 5 464 4
	40	0852	470	7538	118	6981	515	.973 0137	8 139	20		Cotangent
	50	1322	470	7420	119	7497	516	.972 2001	8 136	10		8300 8200
8	0	0.244 1792		0.969 7301		0.251 8012		3.971 3868		0	52	
	10	2262	470	7183	118	8528	516	.970 5738	8 130	50		1 830 0 820 0
	20	2732	470	7064	119	9043	515	.969 7611	8 127	40		2 1660 0 1640 0
	30	3203	471	6946	118	9559	516	.968 9488	8 123	30		3 2490 0 2160 0
	40	3673	470	6828	119	0.252 0074	515	.968 1368	8 120	20		4 3320 0 3280 0
	50	4143	470	6709	118	0590	516	.967 3251	8 117	10		5 1150 0 4100 0
9	0	0.244 4613		0.969 6591		0.252 1106		3.966 5137		0	51	
	10	5083	470	6472	119	1621	515	.965 7026	8 111	50		6 4980 0 4920 0
	20	5553	470	6353	118	2137	516	.964 8918	8 108	40		7 5810 0 5740 0
	30	6023	470	6235	119	2653	515	.964 0813	8 105	30		8 6640 0 6560 0
	40	6493	470	6116	118	3168	516	.963 2711	8 102	20		9 7470 0 7380 0
	50	6963	470	5998	119	3684	516	.962 4613	8 098	10		8100 8000
10	0	0.244 7433		0.969 5879		0.252 4200		3.961 6518		0	50	
												1 810 0 800 0
												2 1620 0 1600 0
												3 2430 0 2400 0
												4 3240 0 3200 0
												5 4050 0 4000 0
												6 4860 0 4800 0
												7 5670 0 5600 0
												8 6480 0 6400 0
												9 7290 0 7200 0
		Cosine	Diff.	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	"	Proportional Parts

75° 50'

14° 10'

	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
10	0	0.244 7433		0.969 5879		0.252 4200		3.961 6518		0	50	
	10	7904	471	5760	119	4715	515	.960 8425	8 093	50		
	20	8374	470	5642	118	5231	516	.960 0336	8 089	40		
	30	8844	470	5523	119	5747	516	.959 2250	8 086	30		
	40	9314	470	5404	119	6263	516	.958 4167	8 083	20		
	50	9784	470	5285	118	6778	515	.957 6087	8 080	10		
			470		118		516		8 076			
11	0	0.245 0254		0.969 5167		0.252 7294		3.966 8011		0	49	
	10	0724	470	5048	119	7810	516	.955 9937	8 074	50		
	20	1194	470	4929	119	8326	516	.955 1866	8 071	40		
	30	1664	470	4810	119	8841	516	.954 3799	8 067	30		
	40	2134	470	4691	119	9357	516	.953 5735	8 064	20		
	50	2604	470	4572	119	9873	516	.952 7673	8 062	10		
			470		119		516		8 058			
12	0	0.245 3074		0.969 4463		0.253 0389		3.961 9615		0	48	
	10	3544	470	4335	118	0905	516	.951 1560	8 055	50		
	20	4014	470	4216	119	1421	516	.950 3508	8 052	40		
	30	4484	470	4097	119	1937	516	.949 5459	8 049	30		
	40	4954	470	3978	119	2453	516	.948 7413	8 046	20		
	50	5424	470	3859	119	2968	515	.947 9371	8 042	10		
			470		119		516		8 040			
13	0	0.245 5894		0.969 3740		0.253 3484		3.947 1331		0	47	
	10	6364	470	3620	120	4000	516	.946 3294	8 037	50		
	20	6834	470	3501	119	4516	516	.945 5261	8 033	40		
	30	7304	470	3382	119	5032	516	.944 7230	8 031	30		
	40	7774	470	3263	119	5548	516	.943 9203	8 027	20		
	50	8244	470	3144	119	6064	516	.943 1179	8 024	10		
			469		119		516		8 022			
14	0	0.245 8713		0.969 3025		0.253 6580		3.942 3157		0	46	
	10	9183	470	2906	119	7096	516	.941 5139	8 018	50		
	20	9653	470	2786	120	7612	516	.940 7124	8 015	40		
	30	0.246 0123	470	2667	119	8128	516	.939 9112	8 012	30		
	40	0593	470	2548	119	8644	516	.939 1103	8 009	20		
	50	1063	470	2428	120	9160	516	.938 3097	8 006	10		
			470		119		516		8 003			
15	0	0.246 1533		0.969 2309		0.253 9676		3.937 5094		0	45	
	10	2003	470	2190	119	0.254 0193	517	.936 7094	8 000	50		
	20	2473	470	2070	120	0709	516	.935 9098	7 996	40		
	30	2943	469	1951	119	1225	516	.935 1104	7 994	30		
	40	3412	470	1832	120	1741	516	.934 3113	7 991	20		
	50	3882	470	1712	120	2257	516	.933 5126	7 987	10		
			470		119		516		7 985			
16	0	0.246 4352		0.969 1593		0.254 2773		3.932 7141		0	44	
	10	4822	470	1473	120	3289	516	.931 9159	7 982	50		
	20	5292	470	1354	119	3806	517	.931 1181	7 978	40		
	30	5762	470	1234	120	4322	516	.930 3205	7 976	30		
	40	6232	470	1115	119	4838	516	.929 5233	7 972	20		
	50	6701	469	0995	120	5354	516	.928 7264	7 969	10		
			470		120		516		7 967			
17	0	0.246 7171		0.969 0875		0.254 5870		3.927 9297		0	43	
	10	7641	470	0756	119	6387	517	.927 1334	7 963	50		
	20	8111	470	0636	120	6903	516	.926 3374	7 960	40		
	30	8581	470	0516	120	7419	516	.925 5417	7 957	30		
	40	9051	470	0397	119	7935	516	.924 7462	7 955	20		
	50	9520	469	0277	120	8452	517	.923 9511	7 951	10		
			470		120		516		7 948			
18	0	0.246 9990		0.969 0157		0.254 8968		3.923 1563		0	42	
	10	0.247 0460	470	0038	119	9484	516	.922 3618	7 945	50		
	20	0930	470	0.968 9918	120	0.255 0001	517	.921 5676	7 942	40		
	30	1400	470	9798	120	0517	516	.920 7737	7 939	30		
	40	1869	469	9678	120	1033	516	.919 9800	7 937	20		
	50	2339	470	9558	120	1550	517	.919 1867	7 933	10		
			470		120		516		7 930			
19	0	0.247 2809		0.968 9438		0.255 2066		3.918 3937		0	41	
	10	3279	470	9319	119	2583	517	.917 6010	7 927	50		
	20	3748	469	9199	120	3099	516	.916 8086	7 924	40		
	30	4218	470	9079	120	3615	516	.916 0165	7 921	30		
	40	4688	470	8959	120	4132	517	.915 2247	7 918	20		
	50	5157	469	8839	120	4648	516	.914 4332	7 915	10		
			470		120		517		7 912			
20	0	0.247 5627		0.968 8719		0.255 5165		3.913 6420		0	40	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

75° 40'

14° 20'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
20	0	0.247 5627		0.968 8719		0.255 5165		3.913 6420		0	40	
	10	6097	470	8599	120	5681	516	912 8511	7 909	50		
	20	6567	470	8479	120	6198	516	.912 0605	7 906	40		
	30	7036	469	8359	120	6714	516	911 2702	7 903	30		
	40	7506	470	8238	121	7231	517	.910 4802	7 900	20		
	50	7976	470	8118	120	7747	516	.909 6905	7 897	10		
			469		120		517		7 894			
21	0	0.247 8445		0.968 7998		0.255 8264		3.908 9011		0	39	
	10	8915	470	7878	120	8780	516	.908 1120	7 891	50		
	20	9385	470	7758	120	9297	517	.907 3232	7 888	40		
	30	9854	469	7638	120	9813	516	.906 5347	7 885	30		
	40	0.248 0324	470	7517	121	0.256 0330	517	.905 7465	7 882	20		
	50	0794	470	7397	120	0847	517	.904 9586	7 879	10		
			469		120		516		7 876			
22	0	0.248 1263		0.968 7277		0.256 1363		3.904 1710		0	38	
	10	1733	470	7156	121	1880	517	.903 3837	7 873	50		
	20	2203	470	7036	120	2397	517	.902 5966	7 871	40		
	30	2672	469	6916	120	2913	516	.901 8099	7 867	30		
	40	3142	470	6795	121	3430	517	.901 0235	7 864	20		
	50	3612	470	6675	120	3946	516	.900 2374	7 861	10		
			469		120		517		7 858			
23	0	0.248 4081		0.968 6555		0.256 4463		3.899 4516		0	37	
	10	4551	470	6434	121	4980	517	.898 6660	7 856	50		
	20	5020	469	6314	120	5497	517	.897 8808	7 852	40		
	30	5490	470	6193	121	6013	516	.897 0959	7 849	30		
	40	5960	470	6073	120	6530	517	.896 3112	7 847	20		
	50	6429	469	5952	121	7047	517	.895 5269	7 843	10		
			470		120		517		7 840			
24	0	0.248 6899		0.968 5832		0.256 7564		3.894 7429		0	36	
	10	7368	469	5711	121	8080	516	.893 9591	7 838	50		
	20	7838	470	5590	121	8597	517	.893 1757	7 834	40		
	30	8308	469	5470	120	9114	517	.892 3925	7 832	30		
	40	8777	469	5349	121	9631	517	.891 6096	7 829	20		
	50	9247	470	5228	121	0.257 0148	517	.890 8271	7 825	10		
			469		120		516		7 823			
25	0	0.248 9716		0.968 5108		0.257 0664		3.890 0448		0	35	
	10	0.249 0186	470	4987	121	1181	517	.889 2628	7 820	50		
	20	0655	469	4866	121	1698	517	.888 4811	7 817	40		
	30	1125	470	4746	120	2215	517	.887 6998	7 813	30		
	40	1594	469	4625	121	2732	517	.886 9187	7 811	20		
	50	2064	470	4504	121	3249	517	.886 1379	7 808	10		
			469		121		517		7 805			
26	0	0.249 2533		0.968 4383		0.257 3766		3.885 3574		0	34	
	10	3003	470	4262	121	4283	517	.884 5772	7 802	50		
	20	3472	469	4141	121	4800	517	.883 7972	7 800	40		
	30	3942	469	4021	120	5317	517	.883 0176	7 796	30		
	40	4411	470	3900	121	5834	517	.882 2383	7 793	20		
	50	4881	470	3779	121	6351	517	.881 4593	7 790	10		
			469		121		517		7 788			
27	0	0.249 5350		0.968 3658		0.257 6868		3.880 6805		0	33	
	10	5820	470	3537	121	7385	517	.879 9021	7 784	50		
	20	6289	469	3416	121	7902	517	.879 1239	7 782	40		
	30	6759	470	3295	121	8419	517	.878 3460	7 779	30		
	40	7228	469	3174	121	8936	517	.877 5685	7 775	20		
	50	7698	470	3053	121	9453	517	.876 7912	7 773	10		
			469		122		517		7 770			
28	0	0.249 8167		0.968 2931		0.257 9970		3.876 0142		0	32	
	10	8637	470	2810	121	0.258 0487	517	.875 2375	7 767	50		
	20	9106	469	2689	121	1004	517	.874 4611	7 764	40		
	30	9575	469	2568	121	1521	517	.873 6850	7 761	30		
	40	0.250 0045	470	2447	121	2038	517	.872 9092	7 758	20		
	50	0514	469	2326	121	2555	517	.872 1337	7 755	10		
			470		122		518		7 753			
29	0	0.250 0984		0.968 2204		0.258 3073		3.871 3584		0	31	
	10	1453	469	2083	121	3590	517	.870 5835	7 749	50		
	20	1923	470	1962	121	4107	517	.869 8088	7 747	40		
	30	2392	469	1840	122	4624	517	.869 0344	7 744	30		
	40	2861	469	1719	121	5141	517	.868 2604	7 740	20		
	50	3331	470	1598	121	5659	518	.867 4866	7 738	10		
			469		122		517		7 735			
30	0	0.250 3800		0.968 1476		0.258 6176		3.866 7131		0	30	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

75° 30'

14° 30'

	"	Sine *	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
30	0	0.250 3800		0.968 1476		0.258 6176		3.866 7131		0	30	
	10	4269	469	1355	121	6693	517	.865 9399	7 732	50		
	20	4739	470	1234	121	7210	517	.865 1670	7 729	40		
	30	5208	469	1112	122	7728	518	.864 3944	7 726	30		
	40	5677	469	0991	121	8245	517	.863 6220	7 724	20		
	50	6147	470	0869	122	8762	517	.862 8500	7 720	10		
			469		121		518		7 718			
31	0	0.250 6616		0.968 0748		0.258 9280		3.862 0782		0	29	
	10	7085	469	0626	122	9797	517	.861 3067	7 715	50		Sine
	20	7555	470	0505	121	0.259 0314	517	.860 5356	7 711	40		469 470
	30	8024	469	0383	122	0832	518	.859 7647	7 709	30		1 46 9 47 0
	40	8493	469	0261	122	1349	517	.858 9941	7 706	20		2 93 8 94 0
	50	8963	470	0140	121	1866	517	.858 2238	7 703	10		3 140 7 141 0
			469		122		518		7 701			4 187 6 188 0
32	0	0.250 9432		0.968 0018		0.259 2384		3.857 4537		0	28	
	10	9901	469	0.967 9896	122	2901	517	.856 6840	7 697	50		5 234 5 235 0
	20	0 251 0371	470	9775	121	3418	517	.855 9145	7 695	40		6 281 4 282 0
	30	0840	469	9653	122	3936	518	.855 1454	7 691	30		7 328 3 329 0
	40	1309	469	9531	122	4453	517	.854 3765	7 689	20		8 375 2 376 0
	50	1779	470	9410	121	4971	518	.853 6079	7 686	10		9 422 1 423 0
			469		122		517		7 683			
33	0	0 251 2248		0.967 9288		0.259 5488		3.852 8396		0	27	
	10	2717	469	9166	122	6006	518	.852 0716	7 680	50		Cosine
	20	3186	469	9044	122	6523	517	.851 3039	7 677	40		121 122 123
	30	3656	470	8922	122	7040	517	.850 5364	7 675	30		1 12 1 12 2 12 3
	40	4125	469	8800	122	7558	518	.849 7693	7 671	20		2 24 2 24 4 24 6
	50	4594	469	8678	121	8076	518	.849 0024	7 669	10		3 36 3 36 6 36 9
			469		122		517		7 666			4 48 4 48 8 49 2
34	0	0 251 5063		0.967 8557		0.259 8593		3.848 2358		0	26	
	10	5532	469	8435	122	9111	518	.847 4695	7 663	50		5 60 5 61 0 61 5
	20	6002	470	8313	122	9628	517	.846 7035	7 660	40		6 72 6 73 2 73 8
	30	6471	469	8191	122	0.260 0146	518	.845 9378	7 657	30		7 84 7 85 4 86 1
	40	6940	469	8069	122	0664	517	.845 1724	7 654	20		8 96 8 97 6 98 4
	50	7409	470	7947	122	1181	518	.844 4072	7 652	10		9 108 9 109 8 110 7
			469		122		517		7 648			
35	0	0.251 7879		0.967 7825		0.260 1699		3 843 6424		0	25	
	10	8348	469	7702	123	2217	518	.842 8778	7 646	50		Tangent
	20	8817	469	7580	122	2734	517	.842 1135	7 643	40		517 518
	30	9286	469	7458	122	3252	518	.841 3495	7 640	30		1 51 7 51 8
	40	9755	469	7336	122	3770	518	.840 5857	7 638	20		2 103 4 103 6
	50	0 252 0224	470	7214	122	4287	517	.839 8223	7 634	10		3 155 1 155 4
			469		122		518		7 632			4 206 8 207 2
36	0	0.252 0694		0.967 7092		0.260 4805		3.839 0591		0	24	
	10	1163	469	6969	123	5323	518	.838 2963	7 628	50		5 258 5 259 0
	20	1632	469	6847	122	5840	517	.837 5337	7 626	40		6 310 2 310 8
	30	2101	469	6725	122	6358	518	.836 7714	7 623	30		7 361 9 362 6
	40	2570	469	6603	122	6876	518	.836 0093	7 621	20		8 413 6 414 4
	50	3039	469	6480	123	7394	518	.835 2476	7 617	10		9 465 3 466 2
			469		122		517		7 615			
37	0	0.252 3508		0.967 6358		0.260 7911		3.834 4861		0	23	
	10	3978	470	6236	122	8429	518	.833 7250	7 611	50		Cotangent
	20	4447	469	6113	123	8947	518	.832 9641	7 609	40		7700
	30	4916	469	5991	122	9465	518	.832 2034	7 607	30		1 770 0
	40	5385	469	5869	122	9983	518	.831 4431	7 603	20		2 1540 0
	50	5854	469	5746	123	0.261 0500	517	.830 6831	7 600	10		3 2310 0
			469		122		518		7 598			4 3080 0
38	0	0.252 6323		0.967 5624		0.261 1018		3 829 9233		0	22	
	10	6792	469	5501	123	1536	518	.829 1638	7 595	50		5 3850 0
	20	7261	469	5379	122	2054	518	.828 4046	7 592	40		6 4620 0
	30	7730	469	5256	123	2572	518	.827 6457	7 589	30		7 5390 0
	40	8199	469	5133	123	3090	518	.826 8871	7 586	20		8 6160 0
	50	8668	469	5011	123	3608	518	.826 1287	7 580	10		9 6930 0
			469		123		518					
39	0	0.252 9137		0.967 4888		0.261 4126		3.825 3707		0	21	
	10	9607	470	4766	122	4644	518	.824 6129	7 578	50		7600 7500
	20	0 253 0076	469	4643	123	5162	518	.823 8554	7 575	40		1 760 0 750 0
	30	0545	469	4520	123	5680	518	.823 0981	7 573	30		2 1520 0 1500 0
	40	1014	469	4398	122	6198	518	.822 3412	7 569	20		3 2280 0 2250 0
	50	1483	469	4275	123	6716	518	.821 5845	7 567	10		4 3040 0 3000 0
			469		123		518		7 564			5 3800 0 3750 0
40	0	0 253 1952		0.967 4152		0.261 7234		3.820 8281		0	20	
												6 4560 0 4500 0
												7 5320 0 5250 0
												8 6080 0 6000 0
												9 6840 0 6750 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

75° 20'

14° 40'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
40	0	0.253 1952		0.967 4152		0.261 7234		3.820 8281		0	20	
	10	2421	469	4029	123	7752	518	.820 0720	7 561	50		
	20	2890	469	3907	122	8270	518	.819 3162	7 558	40		
	30	3359	469	3784	123	8788	518	.818 5606	7 556	30		
	40	3828	469	3661	123	9306	518	.817 8054	7 552	20		
	50	4297	469	3538	123	9824	518	.817 0504	7 550	10		
			469						7 547			
41	0	0.253 4766		0.967 3415		0.262 0342		3.816 2957		0	19	Sine
	10	5235	469	3292	123	0860	518	.815 5412	7 545	50		468 469
	20	5704	469	3169	123	1378	518	.814 7871	7 541	40		1 46 8 46 9
	30	6173	469	3047	122	1896	518	.814 0332	7 539	30		2 93 6 93 8
	40	6642	468	2924	123	2415	519	.813 2796	7 536	20		3 140 4 140 7
	50	7110	468	2801	123	2933	518	.812 5263	7 533	10		4 187 2 187 6
			469		123		518		7 530			5 234 0 234 5
42	0	0.253 7579		0.967 2678		0.262 3451		3.811 7733		0	18	6 280 8 281 4
	10	8048	469	2554	124	3969	518	.811 0205	7 528	50		7 327 6 328 3
	20	8517	469	2431	123	4487	518	.810 2680	7 525	40		8 374 4 375 2
	30	8986	469	2308	123	5005	518	.809 5158	7 522	30		9 421 2 422 1
	40	9455	469	2185	123	5524	519	.808 7639	7 519	20		
	50	9924	469	2062	123	6042	518	.808 0123	7 516	10		
			469		123		518		7 514			Cosine
43	0	0.254 0393		0.967 1939		0.262 6560		3.807 2609		0	17	122 123 124
	10	0862	469	1816	123	7078	518	.806 5098	7 511	50		1 12 2 12 3 12 4
	20	1331	469	1693	123	7597	519	.805 7590	7 508	40		2 24 4 24 6 24 8
	30	1800	469	1569	124	8115	518	.805 0085	7 505	30		3 36 6 36 9 37 2
	40	2269	469	1446	123	8633	518	.804 2582	7 503	20		4 18 8 19 2 49 6
	50	2737	468	1323	123	9152	519	.803 5082	7 500	10		5 61 0 61 5 62 0
			469		123		518		7 497			6 73 2 73 8 74 4
44	0	0.254 3206		0.967 1200		0.262 9670		3.802 7585		0	16	7 85 4 86 1 86 8
	10	3675	469	1076	124	0 263 0188	518	.802 0091	7 494	50		8 97 6 98 4 99 2
	20	4144	469	0953	123	0707	519	.801 2599	7 492	40		9 109 8 110 7 111 6
	30	4613	469	0830	123	1225	518	.800 5110	7 489	30		
	40	5082	469	0706	124	1743	518	.799 7624	7 486	20		Tangent
	50	5551	469	0583	123	2262	519	.799 0141	7 483	10		518 519
			468		124		518		7 480			1 51 8 51 9
45	0	0.254 6019		0.967 0459		0.263 2780		3.798 2661		0	15	2 193 6 193 8
	10	6488	469	0336	123	3299	519	.797 5183	7 478	50		3 155 4 155 7
	20	6957	469	0212	124	3817	518	.796 7708	7 475	40		4 207 2 207 6
	30	7426	469	0089	123	4336	519	.796 0236	7 472	30		5 259 0 259 5
	40	7895	469	0 966 9965	124	4854	518	.795 2766	7 470	20		6 310 8 311 4
	50	8364	468	9842	123	5373	519	.794 5299	7 467	10		7 362 6 363 3
			469		124		518		7 464			8 414 4 415 2
46	0	0.254 8832		0.966 9718		0.263 5891		3.793 7835		0	14	9 466 2 467 1
	10	9301	469	9595	123	6410	519	.793 0374	7 461	50		
	20	9770	469	9471	124	6928	518	.792 2916	7 458	40		Cotangent
	30	0.255 0239	469	9348	123	7447	519	.791 5460	7 456	30		7600 7500
	40	0708	469	9224	124	7965	518	.790 8007	7 453	20		1 760 0 750 0
	50	1176	468	9100	123	8484	519	.790 0556	7 451	10		2 1520 0 1500 0
			469				518		7 447			3 2280 0 2250 0
47	0	0.255 1645		0.966 8977		0.263 9002		3.789 3109		0	13	4 3040 0 3000 0
	10	2114	469	8853	124	9521	519	.788 5664	7 445	50		5 3800 0 3750 0
	20	2583	469	8729	124	0 264 0039	518	.787 8222	7 442	40		6 4560 0 4500 0
	30	3051	468	8605	124	0558	519	.787 0783	7 439	30		7 5320 0 5250 0
	40	3520	469	8482	123	1077	519	.786 3346	7 437	20		8 6080 0 6000 0
	50	3989	469	8358	124	1595	518	.785 5912	7 434	10		9 6840 0 6750 0
			469		124		519		7 431			
48	0	0.255 4458		0.966 8234		0.264 2114		3.784 8481		0	12	7400
	10	4926	468	8110	124	2633	519	.784 1052	7 429	50		1 740 0
	20	5395	469	7986	124	3151	518	.783 3627	7 425	40		2 1480 0
	30	5864	469	7862	124	3670	519	.782 6204	7 423	30		3 2220 0
	40	6332	468	7738	124	4189	519	.781 8783	7 421	20		4 2960 0
	50	6801	469	7614	124	4707	518	.781 1366	7 417	10		5 3700 0
			469		124		519		7 415			6 4440 0
49	0	0.255 7270		0.966 7490		0.264 5226		3.780 3951		0	11	7 5180 0
	10	7739	469	7366	124	5745	519	.779 6539	7 412	50		8 5820 0
	20	8207	468	7242	124	6264	519	.778 9130	7 409	40		9 6660 0
	30	8676	469	7118	124	6782	518	.778 1723	7 407	30		
	40	9145	469	6994	124	7301	519	.777 4319	7 404	20		
	50	9613	468	6870	124	7820	519	.776 6918	7 401	10		
			469		124		519		7 399			
50	0	0.255 0082		0.966 6746		0.264 8339		3.775 9619		0	10	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	"	Proportional Parts

75° 10'

14° 50'

	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
50	0	0.256 0082		0.966 6746		0.264 8339		3.775 9519		0	10	
	10	0551	469	6622	124	8858	519	.775 2123	7 396	50		
	20	1019	468	6498	124	9376	518	.774 4730	7 393	40		
	30	1488	469	6374	124	9895	519	.773 7340	7 390	30		
	40	1956	468	6249	125	0.265 0414	519	.772 9952	7 388	20		
	50	2425	469	6125	124	0933	519	.772 2567	7 385	10		
			469		124		519		7 382			
51	0	0.256 2894		0.966 6001		0.265 1452		3.771 5185		0	9	
	10	3362	468	5877	124	1971	519	.770 7805	7 380	50		
	20	3831	469	5752	125	2490	519	.770 0428	7 377	40		
	30	4300	469	5628	124	3009	519	.769 3054	7 374	30		
	40	4768	468	5504	124	3528	519	.768 5682	7 372	20		
	50	5237	469	5379	125	4047	519	.767 8313	7 369	10		
			468		124		519		7 366			
52	0	0.256 5705		0.966 5255		0.265 4566		3.767 0947		0	8	
	10	6174	469	5131	124	5085	519	.766 3584	7 363	50		
	20	6643	469	5006	125	5604	519	.765 6223	7 361	40		
	30	7111	468	4882	124	6123	519	.764 8865	7 358	30		
	40	7580	469	4757	125	6642	519	.764 1510	7 355	20		
	50	8048	468	4633	124	7161	519	.763 4157	7 353	10		
			469		125		519		7 350			
53	0	0.256 8517		0.966 4508		0.265 7680		3.762 6807		0	7	
	10	8985	468	4384	124	8199	519	.761 9459	7 348	50		
	20	9454	469	4259	125	8718	519	.761 2115	7 344	40		
	30	9922	468	4135	124	9237	519	.760 4773	7 342	30		
	40	0 257 0391	469	4010	125	9756	519	.759 7433	7 340	20		
	50	0859	468	3885	124	0 266 0275	519	.759 0097	7 336	10		
			469		125		519		7 334			
54	0	0.257 1328		0.966 3761		0.266 0794		3.758 2763		0	6	
	10	1796	468	3636	125	1313	519	.757 5432	7 331	50		
	20	2265	469	3511	125	1833	520	.756 8103	7 329	40		
	30	2733	468	3387	124	2352	519	.756 0777	7 326	30		
	40	3202	469	3262	125	2871	519	.755 3454	7 323	20		
	50	3670	468	3137	124	3390	519	.754 6133	7 321	10		
			469		125		519		7 318			
55	0	0.257 4139		0 966 3012		0 266 3909		3 753 8815		0	5	
	10	4607	468	2888	124	4429	520	.753 1500	7 315	50		
	20	5076	469	2763	125	4948	519	.752 4187	7 313	40		
	30	5544	468	2638	124	5467	519	.751 6877	7 310	30		
	40	6013	469	2513	125	5986	519	.750 9570	7 307	20		
	50	6481	468	2388	124	6506	520	.750 2265	7 305	10		
			469		125		519		7 302			
56	0	0 257 6950		0.966 2263		0 266 7025		3.749 4963		0	4	
	10	7418	468	2138	125	7544	519	.748 7664	7 299	50		
	20	7887	469	2013	125	8064	520	.748 0367	7 297	40		
	30	8355	468	1888	124	8583	519	.747 3073	7 294	30		
	40	8823	469	1763	125	9102	519	.746 5782	7 291	20		
	50	9292	468	1638	124	9622	520	.745 8493	7 289	10		
			469		125		519		7 286			
57	0	0.257 9760		0.966 1513		0.267 0141		3.745 1207		0	3	
	10	0 258 0229	469	1388	125	0660	519	.744 3923	7 284	50		
	20	0697	468	1263	124	1180	520	.743 6643	7 280	40		
	30	1165	469	1138	125	1699	519	.742 9364	7 279	30		
	40	1634	468	1013	124	2219	520	.742 2089	7 275	20		
	50	2102	469	0888	125	2738	519	.741 4816	7 273	10		
			468		126		519		7 270			
58	0	0 258 2570		0 966 0762		0.267 3257		3.740 7546		0	2	
	10	3039	469	0637	125	3777	520	.740 0278	7 268	50		
	20	3507	468	0512	124	4296	519	.739 3013	7 265	40		
	30	3976	469	0387	125	4816	520	.738 5751	7 262	30		
	40	4444	468	0261	124	5335	519	.737 8491	7 260	20		
	50	4912	469	0136	125	5855	520	.737 1234	7 257	10		
			468		126		519		7 254			
59	0	0.258 5381		0.966 0011		0 267 6374		3.736 3980		0	1	
	10	5849	468	0.965 9885	126	6894	520	.735 6728	7 252	50		
	20	6317	469	9760	125	7414	520	.734 9479	7 249	40		
	30	6786	468	9635	124	7933	519	.734 2232	7 247	30		
	40	7254	469	9509	125	8453	520	.733 4988	7 244	20		
	50	7722	468	9384	126	8972	519	.732 7747	7 241	10		
			469		126		520		7 239			
60	0	0.258 8190		0.965 9258		0.267 9492		3.732 0508		0	0	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	"	Proportional Parts

75° 00'

15° 00'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
0	0	0 258 8190		0.965 9258		0.267 9492		3.732 0508		0	60	
	10	8659	469	9133	125	0.268 0012	520	.731 3272	7 236	50		
	20	9127	468	9007	126	0531	519	.730 6039	7 233	40		
	30	9595	468	8882	125	1051	520	.729 8808	7 231	30		
	40	0.259 0064	469	8756	126	1571	520	.729 1579	7 229	20		
	50	0532	468	8631	125	2090	519	.728 4354	7 225	10		
			468		126		520		7 223			
1	0	0.259 1000		0.965 8505		0.268 2610		3.727 7131		0	59	
	10	1468	468	8379	126	3130	520	.726 9910	7 221	50		
	20	1937	469	8254	125	3649	519	.726 2693	7 217	40		
	30	2405	468	8128	126	4169	520	.725 5477	7 216	30		
	40	2873	468	8002	126	4689	520	.724 8265	7 212	20		
	50	3341	468	7877	125	5209	520	.724 1055	7 210	10		
			469		126		519		7 208			
2	0	0.259 3810		0.965 7761		0.268 5728		3.723 3847		0	58	
	10	4278	468	7625	126	6248	520	.722 6643	7 204	50		
	20	4746	468	7499	126	6768	520	.721 9441	7 202	40		
	30	5214	468	7374	125	7288	520	.721 2241	7 200	30		
	40	5682	468	7248	126	7808	520	.720 5044	7 197	20		
	50	6151	469	7122	126	8327	519	.719 7850	7 194	10		
			468		126		520		7 192			
3	0	0.259 6619		0.965 6996		0.268 8847		3.719 0658		0	57	
	10	7087	468	6870	126	9367	520	.718 3469	7 189	50		
	20	7555	468	6744	126	9887	520	.717 6282	7 187	40		
	30	8023	468	6618	126	0.269 0407	520	.716 9098	7 184	30		
	40	8491	469	6492	126	0927	520	.716 1917	7 181	20		
	50	8960	468	6366	126	1447	520	.715 4738	7 179	10		
			469		126		520		7 177			
4	0	0.259 9428		0.965 6240		0.269 1967		3.714 7661		0	56	
	10	9896	468	6114	126	2487	520	.714 0388	7 173	50		
	20	0.260 0364	468	5988	126	3007	520	.713 3217	7 171	40		
	30	0832	468	5862	126	3527	520	.712 6048	7 169	30		
	40	1300	468	5736	126	4047	520	.711 8882	7 166	20		
	50	1768	469	5610	126	4567	520	.711 1719	7 163	10		
			469		126		520		7 161			
5	0	0.260 2237		0.965 5484		0.269 5087		3.710 4558		0	55	
	10	2705	468	5358	126	5607	520	.709 7400	7 158	50		
	20	3173	468	5231	127	6127	520	.709 0244	7 156	40		
	30	3641	468	5105	126	6647	520	.708 3091	7 153	30		
	40	4109	468	4979	126	7167	520	.707 5941	7 150	20		
	50	4577	468	4853	127	7687	520	.706 8793	7 148	10		
			468		127		520		7 145			
6	0	0.260 5045		0.965 4726		0.269 8207		3.706 1648		0	54	
	10	5513	468	4600	126	8727	520	.705 4505	7 143	50		
	20	5981	468	4474	126	9247	520	.704 7365	7 140	40		
	30	6449	468	4347	127	9767	520	.704 0227	7 138	30		
	40	6917	468	4221	126	0.270 0288	521	.703 3092	7 135	20		
	50	7385	468	4095	126	0808	520	.702 5959	7 133	10		
			468		127		520		7 129			
7	0	0.260 7853		0.965 3968		0.270 1328		3.701 8830		0	53	
	10	8321	468	3842	126	1848	520	.701 1702	7 128	50		
	20	8789	468	3715	127	2368	520	.700 4577	7 125	40		
	30	9258	469	3589	126	2889	521	.699 7455	7 122	30		
	40	9726	468	3462	127	3409	520	.699 0335	7 120	20		
	50	0.261 0194	468	3336	126	3929	520	.698 3218	7 117	10		
			468		127		520		7 114			
8	0	0.261 0662		0.965 3209		0.270 4449		3.697 6104		0	52	
	10	1130	468	3083	126	4970	521	.696 8991	7 113	50		
	20	1598	468	2956	127	5490	520	.696 1882	7 109	40		
	30	2066	468	2829	127	6010	520	.695 4775	7 107	30		
	40	2533	467	2703	126	6531	521	.694 7671	7 104	20		
	50	3001	468	2576	127	7051	520	.694 0569	7 102	10		
			468		127		520		7 100			
9	0	0.261 3469		0.965 2449		0.270 7571		3.693 3469		0	51	
	10	3937	468	2323	126	8092	521	.692 6373	7 096	50		
	20	4405	468	2196	127	8612	520	.691 9278	7 095	40		
	30	4873	468	2069	127	9132	520	.691 2187	7 091	30		
	40	5341	468	1942	127	9653	521	.690 5097	7 090	20		
	50	5809	468	1815	126	0.271 0173	520	.689 8011	7 086	10		
			468		126		521		7 084			
10	0	0.261 6277		0.965 1689		0.271 0694		3.689 0927		0	50	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

74° 50'

15° 10'

	'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
10	0		0.261 6277		0.965 1689		0.271 0694		3.689 0927		0	50	
	10		6745	468	1562	127	1214	520	.688 3845	7 082	50		
	20		7213	468	1435	127	1735	521	.687 6766	7 079	40		
	30		7681	468	1308	127	2255	520	.686 9689	7 077	30		
	40		8149	468	1181	127	2775	520	.686 2616	7 073	20		
	50		8617	468	1054	127	3296	521	.685 5544	7 072	10		
				468				521		7 069			
11	0		0.261 9085		0.965 0927		0.271 3817		3.684 8475		0	49	
	10		9552	467	0800	127	4337	520	.684 1409	7 066	50		
	20		0.262 0020	468	0673	127	4858	521	.683 4345	7 064	40		
	30		0488	468	0546	127	5378	520	.682 7283	7 062	30		
	40		0956	468	0419	127	5899	521	.682 0225	7 058	20		
	50		1424	468	0292	127	6419	520	.681 3168	7 057	10		
				468				521		7 053			
12	0		0.262 1892		0.965 0165		0.271 6940		3.680 6115		0	48	
	10		2360	468	0038	127	7460	520	.679 9063	7 052	50		
	20		2827	467	0.964 9911	127	7981	521	.679 2015	7 048	40		
	30		3295	468	9784	128	8502	520	.678 4968	7 047	30		
	40		3763	468	9656	127	9022	520	.677 7925	7 043	20		
	50		4231	468	9529	127	9543	521	.677 0883	7 042	10		
				468				521		7 038			
13	0		0.262 4699		0.964 9402		0.272 0064		3.676 3845		0	47	
	10		5167	468	9275	127	0584	520	.675 6808	7 037	50		
	20		5634	467	9147	128	1105	521	.674 9775	7 033	40		
	30		6102	468	9020	127	1626	521	.674 2743	7 032	30		
	40		6570	468	8893	127	2147	521	.673 5715	7 028	20		
	50		7038	468	8765	128	2667	520	.672 8689	7 026	10		
				468				521		7 024			
14	0		0.262 7506		0.964 8638		0.272 3188		3.672 1665		0	46	
	10		7973	467	8511	127	3709	521	.671 4644	7 021	50		
	20		8441	468	8383	128	4230	521	.670 7625	7 019	40		
	30		8909	468	8256	127	4750	520	.670 0609	7 016	30		
	40		9377	468	8128	128	5271	521	.669 3595	7 014	20		
	50		9844	467	8001	127	5792	521	.668 6584	7 011	10		
				468				521		7 009			
15	0		0.263 0312		0.964 7873		0.272 6313		3.667 9575		0	45	
	10		0780	468	7746	127	6834	521	.667 2569	7 006	50		
	20		1248	468	7618	128	7355	521	.666 5565	7 004	40		
	30		1715	467	7491	127	7876	521	.665 8564	7 001	30		
	40		2183	468	7363	128	8396	520	.665 1565	6 999	20		
	50		2651	468	7235	128	8917	521	.664 4569	6 996	10		
				467				521		6 994			
16	0		0.263 3118		0.964 7108		0.272 9438		3.663 7575		0	44	
	10		3586	468	6980	128	9959	521	.663 0584	6 991	50		
	20		4054	468	6852	127	0.273 0480	521	.662 3595	6 989	40		
	30		4522	468	6725	127	1001	521	.661 6609	6 986	30		
	40		4989	467	6597	128	1522	521	.660 9625	6 984	20		
	50		5457	468	6469	128	2043	521	.660 2644	6 981	10		
				468				521		6 979			
17	0		0.263 5925		0.964 6341		0.273 2564		3.659 5665		0	43	
	10		6392	467	6214	127	3085	521	.658 8688	6 977	50		
	20		6860	468	6086	128	3606	521	.658 1715	6 973	40		
	30		7328	468	5958	128	4127	521	.657 4743	6 972	30		
	40		7795	467	5830	128	4648	521	.656 7774	6 969	20		
	50		8263	468	5702	128	5169	521	.656 0808	6 966	10		
				467				521		6 964			
18	0		0.263 8730		0.964 5574		0.273 5690		3.655 3844		0	42	
	10		9198	468	5446	128	6212	522	.654 6882	6 962	50		
	20		9666	468	5318	128	6733	521	.653 9923	6 959	40		
	30		0.264 0133	467	5190	128	7254	521	.653 2966	6 957	30		
	40		0601	468	5062	128	7775	521	.652 6012	6 954	20		
	50		1069	468	4934	128	8296	521	.651 9060	6 952	10		
				467				521		6 949			
19	0		0.264 1536		0.964 4806		0.273 8817		3.651 2111		0	41	
	10		2004	468	4678	128	9338	521	.650 5164	6 947	50		
	20		2471	467	4550	128	9860	522	.649 8220	6 944	40		
	30		2939	468	4422	128	0.274 0381	521	.649 1278	6 942	30		
	40		3406	467	4294	128	0902	521	.648 4339	6 939	20		
	50		3874	468	4166	128	1423	521	.647 7402	6 937	10		
				468				522		6 935			
20	0		0.264 4342		0.964 4037		0.274 1945		3.647 0467		0	40	
			Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

74° 40'

15° 20'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
20	0	0.264 4342		0.964 4037		0.274 1945		3.647 0467		0	40	
	10	4809	467	3909	128	2466	521	.646 3535	6 932	50		
	20	5277	467	3781	128	2987	521	.645 6605	6 927	40		
	30	5744	467	3653	128	3508	521	.644 9678	6 922	30		
	40	6212	468	3524	129	4030	521	.644 2753	6 925	20		
	50	6679	467	3396	128	4551	521	.643 5831	6 922	10		
			468		128		521		6 920			
21	0	0 264 7147		0.964 3268		0.274 5072		3 642 8911		0	39	Sine
	10	7614	467	3139	129	5594	522	.642 1994	6 917	50		467 468
	20	8082	468	3011	128	6115	521	.641 5079	6 915	40		1 46 7 46 8
	30	8549	467	2883	128	6637	522	.640 8167	6 912	30		2 93 4 93 6
	40	9017	468	2754	129	7158	521	.640 1256	6 911	20		3 140 1 140 4
	50	9484	467	2626	128	7679	521	.639 4349	6 907	10		4 186 8 187 2
			468		129		522		6 905			5 233 5 234 0
22	0	0 264 9952		0.964 2497		0.274 8201		3.638 7444		0	38	6 280 2 280 8
	10	0 265 0419	467	2369	128	8722	521	.638 0541	6 903	50		7 326 0 327 6
	20	0887	468	2240	129	9244	522	.637 3641	6 900	40		8 373 6 374 4
	30	1354	467	2112	128	9765	521	.636 6743	6 898	30		9 420 3 421 2
	40	1822	468	1983	129	0 275 0287	522	.635 9847	6 896	20		
	50	2289	467	1855	128	0808	521	.635 2954	6 893	10		
			468		129		522		6 890			
23	0	0 265 2757		0.964 1726		0 275 1330		3.634 6064		0	37	Cosine
	10	3224	467	1597	129	1851	521	.633 9175	6 889	50		128 129 130
	20	3691	467	1469	128	2373	522	.633 2290	6 885	40		1 12 8 12 9 13 0
	30	4159	468	1340	129	2894	521	.632 5406	6 884	30		2 25 6 25 8 26 0
	40	4626	467	1211	128	3416	522	.631 8526	6 880	20		3 38 4 38 7 39 0
	50	5094	468	1083	129	3937	521	.631 1647	6 880	10		4 51 2 51 6 52 0
			467		128		522		6 879			5 64 0 64 5 65 0
24	0	0 265 5561		0.964 0954		0 275 4459		3.630 4771		0	36	6 76 8 77 4 78 0
	10	6029	468	0825	129	4981	522	.629 7897	6 874	50		7 89 6 90 3 91 0
	20	6496	467	0697	128	5502	521	.629 1026	6 871	40		8 102 4 103 2 104 0
	30	6963	467	0568	129	6024	522	.628 4157	6 869	30		
	40	7431	468	0439	128	6545	521	.627 7291	6 866	20		
	50	7898	467	0310	129	7067	522	.627 0427	6 864	10		
			468		128		522		6 861			
25	0	0.265 8366		0 964 0181		0.275 7589		3.626 3566		0	35	Tangent
	10	8833	467	0052	129	8110	521	.625 6706	6 860	50		521 522
	20	9300	467	0.963 9923	128	8632	522	.624 9850	6 856	40		1 52 1 52 2
	30	9768	468	9794	129	9154	522	.624 2995	6 855	30		2 104 2 104 4
	40	0 266 0235	467	9665	128	9676	521	.623 6143	6 852	20		3 156 3 156 6
	50	0702	468	9536	129	0 276 0197	522	.622 9294	6 849	10		4 208 4 208 8
			467		128		522		6 847			5 260 5 261 0
26	0	0 266 1170		0 963 9407		0.276 0719		3.622 2447		0	34	6 312 6 313 2
	10	1637	467	9278	129	1241	522	.621 5602	6 845	50		7 364 7 365 4
	20	2104	467	9149	128	1763	522	.620 8760	6 842	40		8 416 8 417 6
	30	2572	468	9020	129	2284	521	.620 1920	6 840	30		9 468 9 469 8
	40	3039	467	8891	128	2806	522	.619 5083	6 837	20		
	50	3506	467	8762	129	3328	522	.618 8247	6 836	10		
			468		128		522		6 832			
27	0	0.266 3973		0.963 8633		0 276 3850		3.618 1415		0	33	Cotangent
	10	4441	468	8504	129	4372	522	.617 4585	6 830	50		6900 6800
	20	4908	467	8375	128	4894	522	.616 7757	6 828	40		1 690 0 690 0
	30	5375	467	8245	130	5416	522	.616 0931	6 826	30		2 1380 0 1380 0
	40	5843	468	8116	129	5937	521	.615 4108	6 823	20		3 2070 0 2070 0
	50	6310	467	7987	128	6459	522	.614 7287	6 821	10		4 2760 0 2760 0
			468		129		522		6 818			5 3450 0 3450 0
28	0	0 266 6777		0.963 7858		0.276 6981		3.614 0469		0	32	6 4140 0 4080 0
	10	7244	467	7728	130	7503	522	.613 3653	6 816	50		7 4830 0 4780 0
	20	7712	468	7599	129	8025	522	.612 6840	6 813	40		8 5520 0 5440 0
	30	8179	467	7470	128	8547	522	.612 0028	6 812	30		9 6210 0 6120 0
	40	8646	467	7340	130	9069	522	.611 3220	6 808	20		
	50	9113	467	7211	129	9591	522	.610 6413	6 807	10		
			468		130		522		6 804			
29	0	0 266 9581		0.963 7081		0.277 0113		3 609 9609		0	31	6700
	10	0 267 0048	467	6952	129	0635	522	.609 2808	6 801	50		1 670 0
	20	0515	467	6823	128	1157	522	.608 6008	6 800	40		2 1340 0
	30	0982	467	6693	130	1679	522	.607 9211	6 797	30		3 2010 0
	40	1449	467	6564	129	2201	522	.607 2417	6 794	20		4 2680 0
	50	1917	468	6434	130	2723	522	.606 5625	6 792	10		5 3350 0
			467		129		522		6 790			6 4020 0
30	0	0.267 2384		0.963 6305		0.277 3245		3 605 8835		0	30	7 4690 0
												8 5360 0
												9 6030 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

74° 30'

15° 30'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff.			Proportional Parts
30	0	0.267 2384		0.963 6305		0.277 3245		3 605 8835		0	30	
	10	2851	467	6175	130	3768	523	.605 2048	6 787	50		
	20	3318	467	6045	130	4290	522	.604 5263	6 785	40		
	30	3785	467	5916	129	4812	522	.603 8480	6 783	30		
	40	4252	467	5786	130	5334	522	.603 1700	6 780	20		
	50	4720	468	5656	130	5856	522	.602 4922	6 778	10		
			467		129		522		6 776			
31	0	0.267 5187		0.963 5527		0.277 6378		3.601 8146		0	29	
	10	5654	467	5397	130	6900	522	.601 1373	6 773	50		Sine
	20	6121	467	5267	130	7423	523	.600 4603	6 770	40		466 467 468
	30	6588	467	5138	129	7945	522	.599 7834	6 769	30		1 46 6 46 7 46 8
	40	7055	467	5008	130	8467	522	.599 1068	6 766	20		2 93 2 93 4 93 6
	50	7522	467	4878	130	8989	522	.598 4304	6 764	10		3 139 8 140 1 140 4
			467		130		523		6 761			4 186 4 186 8 187 2
32	0	0.267 7989		0.963 4748		0 277 9512		3.597 7543		0	28	
	10	8457	468	4618	130	0 278 0034	522	.597 0784	6 759	50		5 233 0 233 5 234 0
	20	8924	467	4488	130		522	.596 4027	6 757	40		6 279 6 280 2 280 8
	30	9391	467	4359	129		523	.595 7273	6 754	30		7 326 2 326 9 327 6
	40	9858	467	4229	130		522	.595 0521	6 752	20		8 372 8 373 6 374 4
	50	0 268 0325	467	4099	130		522	.594 3772	6 749	10		9 419 4 420 3 421 2
			467		130		523		6 748			
33	0	0 268 0792		0.963 3969		0.278 2646		3.593 7024		0	27	
	10	1259	467	3839	130		522	.593 0280	6 744	50		Cosine
	20	1726	467	3709	130		522	.592 3537	6 743	40		129 130 131
	30	2193	467	3579	130		523	.591 6797	6 740	30		1 12 9 13 0 13 1
	40	2660	467	3449	130		522	.591 0059	6 738	20		2 25 8 26 0 26 2
	50	3127	467	3319	130		522	.590 3324	6 735	10		3 38 7 39 0 39 3
			467		130		523		6 734			4 51 6 52 0 52 4
34	0	0 268 3594		0.963 3189		0 278 5780		3 589 6590		0	26	
	10	4061	467	3058	131		522	.588 9860	6 730	50		5 64 5 65 0 65 5
	20	4528	467	2928	130		523	.588 3131	6 729	40		6 77 4 78 0 78 6
	30	4995	467	2798	130		522	.587 6405	6 726	30		7 90 3 91 0 91 7
	40	5462	467	2668	130		523	.586 9681	6 724	20		8 103 2 104 0 104 8
	50	5929	467	2538	130		522	.586 2960	6 721	10		9 116 1 117 0 117 9
			467		130		523		6 719			
35	0	0 268 6396		0.963 2408		0 278 8915		3.585 6241		0	25	
	10	6863	467	2277	131		522	.584 9524	6 717	50		Tangent
	20	7330	467	2147	130		523	.584 2810	6 714	40		522 523
	30	7797	467	2017	130		522	.583 6098	6 712	30		1 52 2 52 3
	40	8264	467	1886	131	0 279 0482	523	.582 9388	6 710	20		2 104 4 104 6
	50	8731	467	1756	130		522	.582 2680	6 708	10		3 156 6 156 9
			467		130		523		6 706			4 208 8 209 2
36	0	0.268 9198		0 963 1626		0 279 2050		3.581 5975		0	24	
	10	9665	467	1495	131		522	.580 9273	6 702	50		5 261 0 261 5
	20	0.269 0132	467	1365	130		522	.580 2572	6 701	40		6 313 2 313 8
	30	0599	467	1234	131		523	.579 5874	6 698	30		7 365 4 366 1
	40	1066	467	1104	130		522	.578 9178	6 696	20		8 417 6 418 4
	50	1533	467	0974	131		523	.578 2485	6 693	10		9 469 8 470 7
			467		131		522		6 691			
37	0	0 269 2000		0.963 0843		0 279 5186		3 577 5794		0	23	
	10	2467	467	0712	131		523	.576 9105	6 689	50		Cotangent
	20	2934	467	0582	130		522	.576 2418	6 687	40		6800 6700
	30	3401	467	0451	131		523	.575 5734	6 698	30		1 680 0 670 0
	40	3867	466	0321	130		522	.574 9052	6 696	20		2 1360 0 1310 0
	50	4334	467	0190	131		523	.574 2373	6 693	10		3 2040 0 2010 0
			467		130		522		6 691			4 2720 0 2680 0
38	0	0.269 4801		0 963 0060		0.279 8322		3.573 5696		0	22	
	10	5268	467	0 962 9929	131		523	.572 9021	6 675	50		5 3400 0 3350 0
	20	5735	467	9798	131		522	.572 2348	6 673	40		6 4080 0 4020 0
	30	6202	467	9667	131		523	.571 5678	6 670	30		7 4760 0 4690 0
	40	6669	467	9537	131	0.280 0414	523	.570 9010	6 668	20		8 5440 0 5360 0
	50	7136	466	9406	131		522	.570 2344	6 666	10		9 6120 0 6030 0
			466		131		523		6 663			6600
39	0	0.269 7602		0 962 9275		0.280 1459		3 569 5681		0	21	
	10	8069	467	9144	131		523	.568 9020	6 661	50		1 660 0
	20	8536	467	9014	130		522	.568 2361	6 659	40		2 1320 0
	30	9003	467	8883	131		523	.567 5704	6 657	30		3 1980 0
	40	9470	467	8752	131		522	.566 9050	6 654	20		4 2640 0
	50	9936	466	8621	131		523	.566 2398	6 652	10		5 3300 0
			467		131		522		6 649			6 3960 0
40	0	0.270 0403		0.962 8490		0.280 4597		3 565 5749		0	20	
												7 4620 0
												8 5280 0
												9 5940 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

74° 20'

15° 40'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
40	0	0.270 0403	467	0.962 8490	131	0.280 4597	523	3.565 5749	6 647	0	20	
	10	0870	467	8359	131	5120	523	.564 9102	6 645	50		
	20	1337	467	8228	131	5643	523	.564 2457	6 643	40		
	30	1804	466	8097	131	6166	523	.563 5814	6 640	30		
	40	2270	467	7966	131	6689	523	.562 9174	6 639	20		
	50	2737	467	7835	131	7212	523	.562 2535	6 635	10		
41	0	0.270 3204	467	0.962 7704	131	0.280 7735	523	3.561 5900	6 634	0	19	Sine
	10	3671	467	7573	131	8258	523	.560 9266	6 631	50		466 467
	20	4138	466	7442	131	8781	523	.560 2635	6 629	40		1 46 6 46 7
	30	4604	467	7311	131	9304	523	.559 6006	6 627	30		2 93 2 93 4
	40	5071	467	7180	131	9827	523	.558 9379	6 624	20		3 119 8 140 1
	50	5538	466	7049	132	0.281 0350	523	.558 2755	6 622	10		4 186 4 186 8
42	0	0.270 6004	467	0.962 6917	131	0.281 0873	523	3.557 6133	6 620	0	18	5 233 0 233 5
	10	6471	467	6786	131	1396	523	.556 9513	6 617	50		6 279 6 280 2
	20	6938	467	6655	131	1919	524	.556 2896	6 615	40		7 326 2 326 9
	30	7405	466	6524	131	2443	523	.555 6281	6 613	30		8 372 8 373 6
	40	7871	467	6393	132	2966	523	.554 9668	6 611	20		9 419 4 420 3
	50	8338	467	6261	131	3489	523	.554 3057	6 608	10		
43	0	0.270 8805	466	0.962 6130	131	0.281 4012	523	3.553 6449	6 606	0	17	Cosine
	10	9271	467	5999	132	4535	524	.552 9843	6 604	50		131 132 133
	20	9738	467	5867	132	5059	523	.552 3239	6 602	40		1 13 1 13 2 13 3
	30	0.271 0205	466	5736	131	5582	523	.551 6637	6 599	30		2 26 2 26 4 26 6
	40	0671	467	5604	132	6105	523	.551 0038	6 597	20		3 39 3 39 6 39 9
	50	1138	467	5473	131	6628	524	.550 3441	6 595	10		4 52 4 52 8 53 2
44	0	0.271 1605	466	0.962 5342	132	0.281 7152	523	3.549 6846	6 592	0	16	5 65 5 66 0 66 5
	10	2071	467	5210	131	7675	523	.549 0254	6 590	50		6 78 6 79 2 79 8
	20	2538	467	5079	131	8198	524	.548 3664	6 588	40		7 91 7 92 1 93 1
	30	3005	466	4947	132	8722	523	.547 7076	6 586	30		8 104 8 105 6 106 4
	40	3471	467	4816	132	9245	523	.547 0490	6 583	20		9 117 9 118 8 119 7
	50	3938	466	4684	132	9768	524	.546 3907	6 582	10		
45	0	0.271 4404	467	0.962 4552	131	0.282 0292	523	3.545 7325	6 578	0	15	Tangent
	10	4871	467	4421	132	0815	523	.545 0747	6 577	50		523 524
	20	5338	466	4289	132	1338	524	.544 4170	6 574	40		1 52 3 52 4
	30	5804	467	4157	131	1862	523	.543 7596	6 572	30		2 104 6 104 8
	40	6271	466	4026	132	2385	524	.543 1024	6 570	20		3 156 9 157 2
	50	6737	467	3894	132	2909	523	.542 4454	6 568	10		4 209 2 209 6
46	0	0.271 7204	467	0.962 3762	131	0.282 3432	524	3.541 7886	6 565	0	14	5 261 5 262 0
	10	7671	466	3631	132	3956	523	.541 1321	6 563	50		6 313 8 314 4
	20	8137	467	3499	132	4479	524	.540 4758	6 561	40		7 366 1 366 8
	30	8604	466	3367	132	5003	523	.539 8197	6 559	30		8 418 4 419 2
	40	9070	467	3235	132	5526	524	.539 1638	6 557	20		9 470 7 471 6
	50	9537	466	3103	131	6050	523	.538 5082	6 554	10		
47	0	0.272 0003	467	0.962 2972	132	0.282 6573	524	3.537 8528	6 552	0	13	Cotangent
	10	0470	466	2840	132	7097	523	.537 1976	6 549	50		6700 6600
	20	0936	467	2708	132	7620	524	.536 5427	6 548	40		1 670 0 660 0
	30	1403	466	2576	132	8144	524	.535 8879	6 546	30		2 1340 0 1320 0
	40	1869	467	2444	132	8668	523	.535 2334	6 545	20		3 2010 0 1980 0
	50	2336	466	2312	132	9191	524	.534 5791	6 543	10		4 2680 0 2640 0
48	0	0.272 2802	467	0.962 2180	132	0.282 9715	523	3.533 9251	6 539	0	12	5 3350 0 3300 0
	10	3269	466	2048	132	0.283 0238	524	.533 2712	6 536	50		6 4020 0 3960 0
	20	3735	467	1916	132	0762	524	.532 6176	6 534	40		7 4690 0 4620 0
	30	4202	466	1784	132	1286	523	.531 9642	6 531	30		8 5360 0 5280 0
	40	4668	467	1652	132	1809	524	.531 3111	6 530	20		9 6030 0 5940 0
	50	5135	466	1520	133	2333	524	.530 6581	6 527	10		
49	0	0.272 5601	467	0.962 1387	132	0.283 2857	524	3.530 0054	6 525	0	11	6500
	10	6068	466	1255	132	3381	523	.529 3529	6 522	50		1 650 0
	20	6534	467	1123	132	3904	524	.528 7007	6 521	40		2 1300 0
	30	7001	466	0991	132	4428	524	.528 0486	6 518	30		3 1950 0
	40	7467	467	0859	132	4952	524	.527 3968	6 516	20		4 2600 0
	50	7934	466	0727	133	5476	523	.526 7452	6 514	10		5 3250 0
50	0	0.272 8400		0.962 0594		0.283 5999		3.526 0938		0	10	6 3900 0
												7 4550 0
												8 5200 0
												9 5850 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff.	"	'	Proportional Parts

74° 10'

15° 50'

	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
50	0	0.272 8400		0.962 0594		0.283 5999		3.526 0938		0	10	
	10	8866	466	0462	132	6523	524	.525 4427	6 511	50		
	20	9333	467	0330	132	7047	524	.524 7917	6 510	40		
	30	9799	466	0197	133	7571	524	.524 1410	6 507	30		
	40	0.273 0266	467	0065	132	8095	524	.523 4905	6 505	20		
	50	0732	466	0 961 9933	132	8619	524	.522 8403	6 502	10		
			466		133				6 501			
51	0	0.273 1198		0 961 9800		0.283 9143		3.522 1902		0	9	Sine
	10	1665	467	9668	132	9666	523	.521 5404	6 498	50		466 467
	20	2131	466	9535	133	0.284 0190	524	.520 8908	6 496	40		1 46 6 46 7
	30	2597	466	9403	132	0714	524	.520 2414	6 494	30		2 93 2 93 4
	40	3064	467	9270	133	1238	524	.519 5923	6 491	20		3 139 8 140 1
	50	3530	466	9138	132	1762	524	.518 9433	6 490	10		4 186 4 186 8
			467		133				6 487			5 233 0 233 5
52	0	0 273 3997		0 961 9005		0.284 2286		3.518 2946		0	8	6 279 6 280 2
	10	4463	466	8873	132	2810	524	.517 6461	6 485	50		7 326 2 326 9
	20	4929	466	8740	133	3334	524	.516 9978	6 483	40		8 372 8 373 6
	30	5396	466	8608	132	3858	524	.516 3498	6 480	30		9 419 4 420 3
	40	5862	466	8475	133	4382	524	.515 7020	6 478	20		
	50	6328	466	8342	132	4906	524	.515 0544	6 476	10		
			466		132				6 474			Cosine
53	0	0.273 6794		0 961 8210		0.284 5430		3.514 4070		0	7	132 133 134
	10	7261	467	8077	133	5954	524	.513 7598	6 472	50		1 13 2 13 3 13 4
	20	7727	466	7944	133	6478	524	.513 1129	6 469	40		2 26 4 26 6 26 8
	30	8193	466	7811	132	7003	525	.512 4661	6 468	30		3 39 6 39 9 40 2
	40	8660	467	7679	132	7527	524	.511 8196	6 465	20		4 52 8 53 2 53 6
	50	9126	466	7546	133	8051	524	.511 1733	6 463	10		5 66 0 66 5 67 0
			466		133				6 460			6 79 2 79 8 80 4
54	0	0 273 9592		0.961 7413		0.284 8575		3.510 5273		0	6	7 92 4 93 1 93 8
	10	0 274 0058		7280	133	9099	524	.509 8814	6 459	50		8 105 6 106 4 107 2
	20	0525	467	7147	133	9623	524	.509 2358	6 456	40		9 118 8 119 7 120 6
	30	0991	466	7015	132	0.285 0147	524	.508 5904	6 454	30		
	40	1457	466	6882	133	0672	525	.507 9452	6 452	20		Tangent
	50	1923	466	6749	132	1196	524	.507 3002	6 450	10		524 525
			467		133				6 447			1 52 4 52 5
55	0	0.274 2390		0.961 6616		0.285 1720		3.506 6555		0	5	2 104 8 105 0
	10	2856	466	6483	133	2244	524	.506 0110	6 445	50		3 157 2 157 5
	20	3322	466	6350	133	2769	525	.505 3667	6 443	40		4 209 6 210 0
	30	3788	466	6217	132	3293	524	.504 7226	6 441	30		5 262 0 262 5
	40	4255	467	6084	133	3817	524	.504 0787	6 439	20		6 314 4 315 0
	50	4721	466	5951	133	4341	524	.503 4350	6 437	10		7 366 8 367 5
			466		133				6 434			8 419 2 420 0
56	0	0.274 5187		0 961 5818		0.285 4866		3.502 7916		0	4	9 471 6 472 5
	10	5653	466	5685	133	5390	524	.502 1484	6 432	50		
	20	6119	466	5551	134	5914	524	.501 5054	6 430	40		Cotangent
	30	6585	466	5418	133	6439	525	.500 8626	6 428	30		6500 6400
	40	7052	466	5285	132	6963	524	.500 2200	6 426	20		1 650 0 640 0
	50	7518	466	5152	133	7488	525	.499 5777	6 423	10		2 1300 0 1280 0
			466		133				6 421			3 1950 0 1920 0
57	0	0.274 7984		0.961 5019		0.285 8012		3.498 9356		0	3	4 2600 0 2560 0
	10	8450	466	4885	134	8536	524	.498 2937	6 419	50		5 3250 0 3200 0
	20	8916	466	4752	133	9061	525	.497 6520	6 417	40		6 3900 0 3840 0
	30	9382	466	4619	132	9585	524	.497 0105	6 415	30		7 4550 0 4480 0
	40	9848	466	4486	133	0.286 0110	525	.496 3692	6 413	20		8 5200 0 5120 0
	50	0 275 0315	467	4352	134	0634	524	.495 7282	6 410	10		9 5850 0 5760 0
			466		133				6 408			
58	0	0.275 0781		0.961 4219		0.286 1159		3.495 0874		0	2	6300
	10	1247	466	4086	133	1683	524	.494 4468	6 406	50		1 630 0
	20	1713	466	3952	134	2208	525	.493 8064	6 404	40		2 1260 0
	30	2179	466	3819	133	2732	524	.493 1662	6 402	30		3 1890 0
	40	2645	466	3685	132	3257	524	.492 5263	6 399	20		4 2520 0
	50	3111	466	3552	133	3781	525	.491 8865	6 398	10		5 3150 0
			466		134				6 396			6 3780 0
59	0	0.275 3577		0.961 3418		0.286 4306		3.491 2470		0	1	7 4410 0
	10	4043	466	3285	133	4831	525	.490 6077	6 393	50		8 5040 0
	20	4509	466	3151	134	5355	524	.489 9686	6 391	40		9 5670 0
	30	4975	466	3018	133	5880	525	.489 3298	6 389	30		
	40	5441	466	2884	132	6405	524	.488 6911	6 387	20		
	50	5908	467	2751	133	6929	524	.488 0527	6 384	10		
			466		134				6 383			
60	0	0.275 6374		0 961 2617		0.286 7454		3.487 4144		0	0	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff.	"	'	Proportional Parts

74° 0'

16° 0'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
0	0	0.275 6374	466	0.961 2617	134	0.286 7454	525	3.487 4144	6 380	0	60	
	10	6840	466	2483	134	7979	525	.486 7764	6 378	50		
	20	7306	466	2350	134	8503	525	.486 1386	6 375	40		
	30	7772	466	2216	134	9028	525	.485 5011	6 374	30		
	40	8238	466	2082	134	9553	525	.484 8637	6 371	20		
	50	8704	466	1949	134	0 287 0078	524	.484 2266	6 370	10		
1	0	0.275 9170	466	0.961 1815	134	0.287 0602	525	3.483 5896	6 367	0	59	Sine
	10	9636	466	1681	134	1127	525	.482 9529	6 365	50		465 466
	20	0.276 0102	466	1547	134	1652	525	.482 3164	6 363	40		1 46 5 46 6
	30	0568	466	1413	134	2177	524	.481 6801	6 360	30		2 93 0 93 2
	40	1034	466	1280	134	2701	525	.481 0441	6 359	20		3 139 5 139 8
	50	1500	465	1146	134	3226	525	.480 4082	6 356	10		4 186 0 186 4
2	0	0.276 1965	466	0.961 1012	134	0.287 3751	525	3.479 7726	6 355	0	58	
	10	2431	466	0878	134	4276	525	.479 1371	6 352	50		5 232 5 233 0
	20	2897	466	0744	134	4801	525	.478 5019	6 350	40		6 279 0 279 6
	30	3363	466	0610	134	5326	525	.477 8669	6 347	30		7 325 5 326 2
	40	3829	466	0476	134	5851	524	.477 2322	6 346	20		8 372 0 372 8
	50	4295	466	0342	134	6375	525	.476 5976	6 344	10		9 418 5 419 4
3	0	0.276 4761	466	0.961 0208	134	0.287 6900	525	3.475 9632	6 341	0	57	Cosine
	10	5227	466	0074	134	7425	525	.475 3291	6 339	50		133 134 135
	20	5693	466	0.960 9940	134	7950	525	.474 6952	6 338	40		1 13 3 13 4 13 5
	30	6159	466	9806	134	8475	525	.474 0614	6 338	30		2 26 6 26 8 27 0
	40	6625	466	9672	134	9000	525	.473 4279	6 335	20		3 39 9 40 2 40 5
	50	7091	465	9537	135	9525	525	.472 7947	6 332	10		4 53 2 53 6 54 0
4	0	0.276 7556	466	0.960 9403	134	0.288 0050	525	3.472 1616	6 331	0	56	
	10	8022	466	9269	134	0575	525	.471 5287	6 329	50		5 66 5 67 0 67 5
	20	8488	466	9135	134	1100	525	.470 8961	6 326	40		6 79 8 80 4 81 0
	30	8954	466	9001	134	1625	525	.470 2636	6 325	30		7 93 1 93 8 94 5
	40	9420	466	8866	134	2151	525	.469 6314	6 322	20		8 106 4 107 2 108 0
	50	9886	466	8732	134	2676	525	.468 9994	6 320	10		9 119 7 120 6 121 5
5	0	0.277 0352	465	0.960 8598	135	0.288 3201	525	3.468 3676	6 318	0	55	Tangent
	10	0817	466	8463	134	3726	525	.467 7360	6 316	50		524 525 526
	20	1283	466	8329	134	4251	525	.467 1046	6 314	40		1 52 4 52 5 52 6
	30	1749	466	8195	134	4776	525	.466 4735	6 311	30		2 104 8 105 0 105 2
	40	2215	466	8060	134	5301	525	.465 8425	6 310	20		3 157 2 157 5 157 8
	50	2681	466	7926	134	5826	526	.465 2118	6 307	10		4 209 6 210 0 210 4
6	0	0.277 3147	465	0.960 7792	135	0.288 6352	525	3.464 5813	6 303	0	54	
	10	3612	466	7657	134	6877	525	.463 9510	6 301	50		5 262 0 262 5 263 0
	20	4078	466	7523	135	7402	525	.463 3209	6 299	40		6 314 4 315 0 315 6
	30	4544	466	7388	134	7927	526	.462 6910	6 297	30		7 366 8 367 5 368 2
	40	5010	465	7254	135	8453	525	.462 0613	6 295	20		8 419 2 420 0 420 8
	50	5475	466	7119	135	8978	525	.461 4318	6 292	10		9 471 6 472 5 473 4
7	0	0.277 5941	466	0.960 6984	134	0.288 9503	525	3.460 8026	6 291	0	53	Cotangent
	10	6407	466	6850	135	0 289 0028	526	.460 1735	6 288	50		6400 6300
	20	6873	465	6715	134	0554	525	.459 5447	6 286	40		1 640 0 640 0
	30	7338	466	6581	134	1079	525	.458 9161	6 284	30		2 1280 0 1280 0
	40	7804	466	6446	135	1604	526	.458 2877	6 282	20		3 1920 0 1890 0
	50	8270	466	6311	134	2130	525	.457 6595	6 280	10		4 2560 0 2520 0
8	0	0.277 8736	465	0.960 6177	135	0.289 2655	526	3.457 0315	6 278	0	52	
	10	9201	466	6042	135	3181	525	.456 4037	6 276	50		5 3200 0 3150 0
	20	9667	466	5907	135	3706	525	.455 7761	6 273	40		6 3840 0 3780 0
	30	0.278 0133	465	5772	134	4231	526	.455 1488	6 272	30		7 4480 0 4410 0
	40	0598	466	5638	135	4757	525	.454 5216	6 269	20		8 5120 0 5040 0
	50	1064	466	5503	135	5282	526	.453 8947	6 268	10		9 5760 0 5670 0
9	0	0.278 1530	466	0.960 5368	135	0.289 5808	525	3.453 2679	6 265	0	51	
	10	1996	465	5233	135	6333	526	.452 6414	6 263	50		6200
	20	2461	466	5098	135	6859	525	.452 0151	6 261	40		1 620 0
	30	2927	466	4963	135	7384	526	.451 3890	6 259	30		2 1240 0
	40	3393	465	4828	135	7910	525	.450 7631	6 257	20		3 1860 0
	50	3858	466	4693	135	8435	526	.450 1374	6 254	10		4 2480 0
10	0	0.278 4324	466	0.960 4558	135	0.289 8961	525	3.449 5120	6 251	0	50	
												5 3100 0
												6 3720 0
												7 4340 0
												8 4960 0
												9 5580 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff			Proportional Parts

73° 50'

16° 10'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
10	0	0.278 4324		0.960 4558		0.289 8961		3.449 5120		0	50	
	10	4789	465	4423	135	9486	525	.448 8867	6 253	50		
	20	5255	466	4288	135	0.290 0012	526	.448 2616	6 251	40		
	30	5721	466	4153	135	0538	526	.447 6368	6 248	30		
	40	6186	465	4018	135	1063	525	.447 0122	6 246	20		
	50	6652	466	3883	135	1589	526	.446 3877	6 245	10		
			466		135		525		6 242			
11	0	0 278 7118		0.960 3748		0.290 2114		3 445 7635		0	49	
	10	7583	465	3613	135	2640	526	.445 1395	6 240	50		
	20	8049	466	3478	135	3166	526	.444 5157	6 238	40		
	30	8514	465	3343	135	3691	525	.443 8921	6 236	30		
	40	8980	466	3207	136	4217	526	.443 2687	6 234	20		
	50	9445	465	3072	135	4743	526	.442 6455	6 232	10		
			466		135		526		6 229			
12	0	0 278 9911		0.960 2937		0.290 5269		3.442 0226		0	48	
	10	0 279 0377	466	2802	135	5794	525	.441 3998	6 228	50		
	20	0842	465	2666	136	6320	526	.440 7773	6 225	40		
	30	1308	466	2531	135	6846	526	.440 1549	6 224	30		
	40	1773	465	2396	136	7372	526	.439 5328	6 221	20		
	50	2239	466	2260	136	7897	525	.438 9108	6 220	10		
			465		135		526		6 217			
13	0	0 279 2704		0 960 2125		0.290 8423		3 438 2891		0	47	
	10	3170	466	1989	136	8949	526	.437 6676	6 215	50		
	20	3635	465	1854	135	9475	526	.437 0463	6 213	40		
	30	4101	466	1719	135	0 291 0001	526	.436 4252	6 211	30		
	40	4566	465	1583	136	0527	526	.435 8043	6 209	20		
	50	5032	466	1448	135	1053	526	.435 1836	6 207	10		
			465		136		525		6 205			
14	0	0 279 5497		0.960 1312		0 291 1578		3.434 5631		0	46	
	10	5963	466	1177	135	2104	526	.433 9429	6 202	50		
	20	6428	465	1041	136	2630	526	.433 3228	6 201	40		
	30	6894	466	0905	136	3156	526	.432 7029	6 199	30		
	40	7359	465	0770	135	3682	526	.432 0833	6 196	20		
	50	7825	466	0634	136	4208	526	.431 4638	6 195	10		
			465		135		526		6 192			
15	0	0 279 8290		0 960 0499		0.291 4734		3.430 8446		0	45	
	10	8756	466	0363	136	5260	526	.430 2255	6 191	50		
	20	9221	465	0227	136	5786	526	.429 6067	6 188	40		
	30	9686	466	0091	136	6312	526	.428 9881	6 186	30		
	40	0 280 0152	465	0.959 9956	135	6838	526	.428 3697	6 184	20		
	50	0617	466	9820	136	7364	526	.427 7514	6 183	10		
			466		136		526		6 180			
16	0	0.280 1083		0.959 9684		0 291 7890		3.427 1334		0	44	
	10	1548	465	9548	136	8417	527	.426 5156	6 178	50		
	20	2013	466	9413	135	8943	526	.425 8980	6 176	40		
	30	2479	466	9277	136	9469	526	.425 2806	6 174	30		
	40	2944	465	9141	136	9995	526	.424 6634	6 172	20		
	50	3410	466	9005	136	0 292 0521	526	.424 0465	6 169	10		
			465		136		526		6 168			
17	0	0.280 3875		0.959 8869		0.292 1047		3.423 4297		0	43	
	10	4340	466	8733	136	1573	526	.422 8131	6 166	50		
	20	4806	465	8597	136	2100	527	.422 1967	6 164	40		
	30	5271	466	8461	136	2626	526	.421 5806	6 161	30		
	40	5736	465	8325	136	3152	526	.420 9646	6 160	20		
	50	6202	466	8189	136	3678	526	.420 3489	6 157	10		
			465		136		527		6 156			
18	0	0.280 6667		0.959 8053		0.292 4205		3.419 7333		0	42	
	10	7132	465	7917	136	4731	526	.419 1180	6 153	50		
	20	7598	466	7781	136	5257	526	.418 5028	6 152	40		
	30	8063	465	7645	136	5784	527	.417 8879	6 149	30		
	40	8528	466	7508	137	6310	526	.417 2731	6 148	20		
	50	8994	466	7372	136	6836	526	.416 6586	6 145	10		
			465		136		527		6 143			
19	0	0 280 9459		0.959 7236		0.292 7363		3.416 0443		0	41	
	10	9924	465	7100	136	7889	526	.415 4301	6 142	50		
	20	0 281 0389	466	6964	137	8415	526	.414 8162	6 139	40		
	30	0855	466	6827	136	8942	527	.414 2025	6 137	30		
	40	1320	465	6691	136	9468	526	.413 5890	6 135	20		
	50	1785	466	6555	136	9995	527	.412 9757	6 133	10		
			466		137		526		6 131			
20	0	0.281 2251		0.959 6418		0.293 0521		3.412 3628		0	40	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff.	"	'	Proportional Parts

73° 40'

16° 20'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
20	0	0.281 2251		0.959 6418		0.293 0521		3.412 3626		0	40	
	10	2716	465	6282	136	1047	526	.411 7497	6 129	50		
	20	3181	465	6146	136	1574	527	.411 1370	6 127	40		
	30	3646	465	6009	137	2100	526	.410 5244	6 126	30		
	40	4111	465	5873	136	2627	527	.409 9121	6 123	20		
	50	4577	466	5736	137	3153	526	.409 3001	6 120	10		
			465		136		527		6 119			
21	0	0 281 5042		0.959 5600		0.293 3680		3.408 6882		0	39	
	10	5507	465	5463	137	4206	526	.408 0765	6 117	50		
	20	5972	465	5327	136	4733	527	.407 4650	6 115	40		
	30	6437	465	5190	137	5260	527	.406 8537	6 113	30		
	40	6903	466	5054	136	5786	526	.406 2426	6 111	20		
	50	7368	465	4917	137	6313	527	.405 6317	6 109	10		
			465		136		526		6 107			
22	0	0.281 7833		0.959 4781		0.293 6839		3.405 0210		0	38	
	10	8298	465	4644	137	7366	527	.404 4105	6 105	50		
	20	8763	465	4507	137	7893	527	.403 8003	6 102	40		
	30	9229	466	4371	136	8419	526	.403 1902	6 101	30		
	40	9694	465	4234	137	8946	527	.402 5803	6 099	20		
	50	0 282 0159	465	4097	137	9473	527	.401 9706	6 097	10		
			465		136		526		6 094			
23	0	0 282 0624		0.959 3961		0.293 9999		3.401 3612		0	37	
	10	1089	465	3824	137	0 294 0526	527	.400 7519	6 093	50		
	20	1554	465	3687	137	1053	527	.400 1428	6 091	40		
	30	2019	465	3550	137	1580	527	.399 5339	6 089	30		
	40	2484	465	3413	137	2106	526	.398 9253	6 086	20		
	50	2949	465	3277	136	2633	527	.398 3168	6 085	10		
			466		137		527		6 083			
24	0	0 282 3415		0.959 3140		0.294 3160		3.397 7085		0	36	
	10	3880	465	3003	137	3687	527	.397 1005	6 080	50		
	20	4345	465	2866	137	4214	527	.396 4926	6 079	40		
	30	4810	465	2729	137	4741	527	.395 8849	6 077	30		
	40	5275	465	2592	137	5267	526	.395 2774	6 075	20		
	50	5740	465	2455	137	5794	527	.394 6702	6 072	10		
			465		137		527		6 071			
25	0	0 282 6205		0 959 2318		0.294 6321		3 394 0631		0	35	
	10	6670	465	2181	137	6848	527	.393 4562	6 069	50		
	20	7135	465	2044	137	7375	527	.392 8496	6 066	40		
	30	7600	465	1907	137	7902	527	.392 2431	6 065	30		
	40	8065	465	1770	137	8429	527	.391 6368	6 063	20		
	50	8530	465	1633	137	8956	527	.391 0307	6 061	10		
			465		137		527		6 058			
26	0	0 282 8995		0.959 1496		0 294 9483		3.390 4249		0	34	
	10	9460	465	1358	138	0.295 0010	527	.389 8192	6 057	50		
	20	9925	465	1221	137	0537	527	.389 2137	6 055	40		
	30	0 283 0390	465	1084	137	1064	527	.388 6084	6 053	30		
	40	0855	465	0947	137	1591	527	.388 0034	6 050	20		
	50	1320	465	0809	138	2118	527	.387 3985	6 049	10		
			465		137		527		6 047			
27	0	0.283 1785		0.959 0672		0.295 2645		3 386 7938		0	33	
	10	2250	465	0535	137	3172	527	.386 1893	6 045	50		
	20	2715	465	0398	137	3699	527	.385 5850	6 043	40		
	30	3180	465	0260	138	4226	527	.384 9810	6 040	30		
	40	3645	465	0123	137	4753	527	.384 3771	6 039	20		
	50	4110	465	0.958 9985	138	5281	528	.383 7734	6 037	10		
			465		137		527		6 035			
28	0	0.283 4575		0.958 9848		0.295 5808		3.383 1699		0	32	
	10	5040	465	9711	137	6335	527	.382 5666	6 033	50		
	20	5505	465	9573	138	6862	527	.381 9635	6 031	40		
	30	5970	465	9436	137	7389	527	.381 3606	6 029	30		
	40	6434	464	9298	138	7917	528	.380 7579	6 027	20		
	50	6899	465	9161	137	8444	527	.380 1554	6 025	10		
			465		138		527		6 023			
29	0	0.283 7364		0.958 9023		0.295 8971		3.379 5531		0	31	
	10	7829	465	8886	137	9498	527	.378 9510	6 021	50		
	20	8294	465	8748	138	0.296 0026	528	.378 3491	6 019	40		
	30	8759	465	8610	138	0553	527	.377 7474	6 017	30		
	40	9224	465	8473	137	1080	527	.377 1459	6 015	20		
	50	9689	464	8335	138	1608	528	.376 5445	6 014	10		
			464		138		527		6 011			
30	0	0 284 0153		0.958 8197		0.296 2135		3.375 9434		0	30	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

73° 30'

16° 30'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
30	0	0.284 0153		0.958 8197		0.296 2135		3.375 9434		0	30	
	10	0618	465	8060	137	2662	527	.375 3425	6 009	50		
	20	1083	465	7922	138	3190	528	.374 7418	6 007	40		
	30	1548	465	7784	138	3717	527	.374 1412	6 006	30		
	40	2013	465	7646	138	4244	527	.373 5409	6 003	20		
	50	2478	465	7509	137	4772	528	.372 9408	6 001	10		
			464		138		527		6 000			
31	0	0.284 2942		0.958 7371		0.296 5299		3.372 3408		0	29	
	10	3407	465	7233	138	5827	528	.371 7411	5 997	50		
	20	3872	465	7095	138	6354	527	.371 1415	5 996	40		
	30	4337	465	6957	138	6882	528	.370 5422	5 993	30		
	40	4802	465	6819	138	7409	527	.369 9430	5 992	20		
	50	5266	464	6681	138	7937	528	.369 3440	5 990	10		
			465		138		527		5 987			
32	0	0.284 5731		0.958 6543		0.296 8464		3.368 7453		0	28	
	10	6196	465	6405	138	8992	528	.368 1467	5 986	50		
	20	6661	465	6267	138	9519	527	.367 5483	5 984	40		
	30	7125	464	6129	138	0.297 0047	528	.366 9502	5 981	30		
	40	7590	465	5991	138	0575	528	.366 3522	5 980	20		
	50	8055	465	5853	138	1102	527	.365 7544	5 978	10		
			465		138		528		5 976			
33	0	0.284 8520		0.958 6715		0.297 1630		3.365 1568		0	27	
	10	8984	464	5577	138	2157	527	.364 5594	5 974	50		
	20	9449	465	5439	138	2685	528	.363 9622	5 972	40		
	30	9914	465	5301	138	3213	528	.363 3652	5 970	30		
	40	0.285 0379	465	5163	138	3740	527	.362 7683	5 969	20		
	50	0843	464	5024	139	4268	528	.362 1717	5 966	10		
			465		138		528		5 964			
34	0	0.285 1308		0.958 4886		0.297 4796		3.361 5753		0	26	
	10	1773	465	4748	138	5324	528	.360 9791	5 962	50		
	20	2237	464	4610	138	5851	527	.360 3830	5 961	40		
	30	2702	465	4471	139	6379	528	.359 7872	5 958	30		
	40	3167	465	4333	138	6907	528	.359 1915	5 957	20		
	50	3631	464	4195	138	7435	528	.358 5961	5 954	10		
			465		139		527		5 953			
35	0	0.285 4096		0.958 4056		0.297 7962		3.358 0008		0	25	
	10	4561	465	3918	138	8490	528	.357 4057	5 951	50		
	20	5025	464	3780	138	9018	528	.356 8109	5 948	40		
	30	5490	465	3641	139	9546	528	.356 2162	5 947	30		
	40	5954	464	3503	138	0.298 0074	528	.355 6217	5 945	20		
	50	6419	465	3364	139	0602	528	.355 0274	5 943	10		
			465		138		527		5 941			
36	0	0.285 6884		0.958 3226		0.298 1129		3.354 4333		0	24	
	10	7348	464	3087	139	1657	528	.353 8394	5 939	50		
	20	7813	465	2949	138	2185	528	.353 2457	5 937	40		
	30	8277	464	2810	139	2713	528	.352 6522	5 935	30		
	40	8742	465	2672	138	3241	528	.352 0588	5 934	20		
	50	9207	465	2533	139	3769	528	.351 4657	5 931	10		
			464		139		528		5 929			
37	0	0.285 9671		0.958 2394		0.298 4297		3.350 8728		0	23	
	10	0.286 0136	465	2256	138	4825	528	.350 2800	5 928	50		
	20	0600	464	2117	139	5353	528	.349 6874	5 926	40		
	30	1065	465	1978	139	5881	528	.349 0951	5 923	30		
	40	1529	464	1840	138	6409	528	.348 5029	5 922	20		
	50	1994	465	1701	139	6937	528	.347 9109	5 920	10		
			464		139		528		5 918			
38	0	0.286 2458		0.958 1562		0.298 7465		3.347 3191		0	22	
	10	2923	465	1423	139	7993	528	.346 7275	5 916	50		
	20	3388	465	1284	139	8522	529	.346 1361	5 914	40		
	30	3852	464	1146	138	9050	528	.345 5449	5 912	30		
	40	4317	465	1007	139	9578	528	.344 9539	5 910	20		
	50	4781	464	0868	139	0.299 0106	528	.344 3631	5 908	10		
			465		139		528		5 907			
39	0	0.286 5246		0.958 0729		0.299 0634		3.343 7724		0	21	
	10	5710	464	0590	139	1162	528	.343 1820	5 904	50		
	20	6174	464	0451	139	1691	529	.342 5917	5 903	40		
	30	6639	465	0312	139	2219	528	.342 0017	5 900	30		
	40	7103	464	0173	139	2747	528	.341 4118	5 899	20		
	50	7568	465	0034	139	3275	528	.340 8221	5 897	10		
			464		139		528		5 895			
40	0	0.286 8032		0.957 9895		0.299 3803		3.340 2326		0	20	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

73° 20'

16° 40'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff.			Proportional Parts
40	0	0.286 8032		0.957 9895		0.299 3803		3.340 2326		0	20	
	10	8497	465	9756	139	4332	529	.339 6433	5 893	50		
	20	8961	464	9617	139	4860	528	.339 0542	5 891	40		
	30	9426	464	9478	139	5388	528	.338 4653	5 889	30		
	40	9890	464	9339	139	5917	529	.337 8766	5 887	20		
	50	0.287 0354	464	9200	139	6445	528	.337 2880	5 886	10		
			465		140		528		5 883			
41	0	0.287 0819		0.957 9060		0.299 6973		3.336 6997		0	19	
	10	1283	464	8921	139	7502	529	.336 1115	5 882	50		
	20	1748	465	8782	139	8030	528	.335 5236	5 879	40		
	30	2212	464	8643	139	8558	528	.334 9358	5 878	30		
	40	2676	464	8504	139	9087	529	.334 3482	5 876	20		
	50	3141	465	8364	140	9615	528	.333 7608	5 874	10		
			464		139		529		5 872			
42	0	0.287 3605		0.957 8225		0.300 0144		3.333 1736		0	18	
	10	4070	465	8086	139	0672	528	.332 5866	5 870	50		
	20	4534	464	7946	140	1201	529	.331 9997	5 869	40		
	30	4998	464	7807	139	1729	528	.331 4131	5 866	30		
	40	5463	465	7668	139	2258	529	.330 8267	5 864	20		
	50	5927	464	7528	140	2786	528	.330 2404	5 863	10		
			464		139		529		5 861			
43	0	0.287 6391		0.957 7389		0.300 3315		3.329 6543		0	17	
	10	6856	465	7249	140	3843	528	.329 0684	5 859	50		
	20	7320	464	7110	139	4372	529	.328 4828	5 856	40		
	30	7784	464	6970	140	4900	528	.327 8973	5 855	30		
	40	8249	465	6831	139	5429	529	.327 3119	5 854	20		
	50	8713	464	6691	140	5958	528	.326 7268	5 851	10		
			464		139		529		5 849			
44	0	0.287 9177		0.957 6562		0.300 6486		3.326 1419		0	16	
	10	9641	464	6412	140	7015	529	.325 5571	5 848	50		
	20	0.288 0106	465	6272	140	7544	529	.324 9726	5 845	40		
	30	0570	464	6133	139	8072	528	.324 3882	5 844	30		
	40	1034	464	5993	140	8601	529	.323 8040	5 842	20		
	50	1498	464	5853	140	9130	528	.323 2200	5 840	10		
			465		139		529		5 838			
45	0	0.288 1963		0.957 5714		0.300 9658		3.322 6362		0	15	
	10	2427	464	5574	140	0.301 0187	529	.322 0526	5 836	50		
	20	2891	464	5434	140	0716	529	.321 4692	5 834	40		
	30	3355	465	5294	140	1245	529	.320 8859	5 833	30		
	40	3820	465	5155	139	1773	528	.320 3029	5 830	20		
	50	4284	464	5015	140	2302	529	.319 7200	5 829	10		
			464		140		529		5 827			
46	0	0.288 4748		0.957 4875		0.301 2831		3.319 1373		0	14	
	10	5212	464	4735	140	3360	529	.318 5548	5 825	50		
	20	5676	464	4595	140	3889	529	.317 9725	5 823	40		
	30	6141	465	4455	140	4418	529	.317 3904	5 821	30		
	40	6605	464	4315	140	4946	528	.316 8085	5 819	20		
	50	7069	464	4175	140	5475	529	.316 2268	5 817	10		
			464		140		529		5 816			
47	0	0.288 7533		0.957 4035		0.301 6004		3.315 6452		0	13	
	10	7997	464	3895	140	6533	529	.315 0638	5 814	50		
	20	8461	464	3755	140	7062	529	.314 4827	5 811	40		
	30	8926	465	3615	140	7591	529	.313 9017	5 810	30		
	40	9390	464	3475	140	8120	529	.313 3209	5 808	20		
	50	9854	464	3335	140	8649	529	.312 7402	5 807	10		
			464		140		529		5 804			
48	0	0.289 0318		0.957 3195		0.301 9178		3.312 1598		0	12	
	10	0782	464	3055	140	9707	529	.311 5795	5 803	50		
	20	1246	464	2915	140	0.302 0236	529	.310 9995	5 800	40		
	30	1710	464	2774	141	0765	529	.310 4196	5 799	30		
	40	2174	464	2634	140	1294	529	.309 8399	5 797	20		
	50	2638	465	2494	140	1823	529	.309 2604	5 795	10		
					140		529		5 793			
49	0	0.289 3103		0.957 2354		0.302 2352		3.308 6811		0	11	
	10	3567	464	2214	140	2881	529	.308 1020	5 791	50		
	20	4031	464	2073	141	3411	530	.307 5230	5 790	40		
	30	4495	464	1933	140	3940	529	.306 9443	5 787	30		
	40	4959	464	1793	140	4469	529	.306 3657	5 786	20		
	50	5423	464	1652	141	4998	529	.305 7873	5 784	10		
			464		140		529		5 782			
50	0	0.289 5887		0.957 1512		0.302 5527		3.305 2091		0	10	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff.	"	'	Proportional Parts

73° 10'

16° 50'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff.	Cotangent	Diff.			Proportional Parts
50	0	0.289 5887	464	0.957 1512	141	0.302 5527	529	3.305 2091	5 780	0	10	
	10	6351	464	1371	140	6056	530	.304 6311	5 779	50		
	20	6815	464	1231	140	6586	529	.304 0532	5 779	40		
	30	7279	464	1091	141	7115	529	.303 4756	5 775	30		
	40	7743	464	0950	140	7644	529	.302 8981	5 773	20		
	50	8207	464	0810	141	8173	530	.302 3208	5 770	10		
51	0	0.289 8671	464	0.957 0669	140	0.302 8703	529	3.301 7438	5 770	0	9	Sine
	10	9135	464	0529	141	9232	529	.301 1668	5 767	50		463 464
	20	9599	464	0388	141	9761	530	.300 5901	5 765	40		1 46 3 46 4
	30	0.290 0063	464	0247	140	0.303 0291	529	.300 0136	5 764	30		2 92 6 92 8
	40	0527	464	0107	141	0820	529	.299 4372	5 761	20		3 138 9 139 2
	50	0991	464	0 956 9966	141	1349	530	.298 8611	5 760	10		4 185 2 185 6
52	0	0.290 1455	464	0.956 9825	140	0.303 1879	529	3.298 2851	5 758	0	8	5 231 5 232 0
	10	1919	464	9685	141	2408	529	.297 7093	5 757	50		6 277 8 278 4
	20	2383	464	9544	141	2937	530	.297 1336	5 754	40		7 321 1 324 8
	30	2847	464	9403	140	3467	529	.296 5582	5 752	30		8 370 4 371 2
	40	3311	464	9263	141	3996	530	.295 9830	5 751	20		9 416 7 417 6
	50	3775	464	9122	141	4526	529	.295 4079	5 749	10		
53	0	0.290 4239	463	0.956 8981	141	0.303 5055	530	3.294 8330	5 747	0	7	Cosine
	10	4702	464	8840	141	5585	529	.294 2583	5 745	50		140 141 142
	20	5166	464	8699	141	6114	530	.293 6838	5 743	40		1 14 0 14 1 14 2
	30	5630	464	8559	140	6644	529	.293 1095	5 742	30		2 28 0 28 2 28 4
	40	6094	464	8418	141	7173	530	.292 5353	5 740	20		3 42 0 12 3 42 6
	50	6558	464	8277	141	7703	529	.291 9613	5 737	10		4 56 0 56 4 56 8
54	0	0.290 7022	464	0.956 8136	141	0.303 8232	530	3.291 3876	5 736	0	6	5 70 0 70 5 71 0
	10	7486	464	7995	141	8762	529	.290 8140	5 735	50		6 84 0 84 6 85 2
	20	7950	464	7854	141	9291	530	.290 2405	5 732	40		7 98 0 98 7 99 4
	30	8414	463	7713	141	9821	530	.289 6673	5 730	30		8 112 0 112 8 113 6
	40	8877	464	7572	141	0 304 0351	529	.289 0943	5 729	20		9 126 0 126 9 127 8
	50	9341	464	7431	141	0880	530	.288 5214	5 727	10		
55	0	0 290 9805	464	0.956 7290	141	0.304 1410	530	3.287 9487	5 725	0	5	Tangent
	10	0 291 0269	464	7149	141	1940	529	.287 3762	5 723	50		529 530 531
	20	0733	464	7008	141	2469	530	.286 8039	5 722	40		1 52 9 53 0 53 1
	30	1197	463	6867	142	2999	530	.286 2317	5 720	30		2 105 8 106 0 106 2
	40	1660	464	6725	141	3529	530	.285 6598	5 719	20		3 158 7 159 0 159 3
	50	2124	464	6584	141	4058	529	.285 0880	5 718	10		4 211 6 212 0 212 4
56	0	0 291 2588	464	0.956 6443	141	0.304 4588	530	3.284 5164	5 716	0	4	5 264 5 265 0 265 5
	10	3052	464	6302	141	5118	530	.283 9450	5 714	50		6 317 4 318 0 318 6
	20	3516	463	6161	142	5648	530	.283 3738	5 712	40		7 370 3 371 0 371 7
	30	3979	464	6019	141	6178	529	.282 8027	5 711	30		8 423 2 424 0 424 8
	40	4443	464	5878	141	6707	530	.282 2319	5 707	20		9 476 1 477 0 477 9
	50	4907	464	5737	142	7237	530	.281 6612	5 705	10		
57	0	0 291 5371	463	0.956 5595	141	0.304 7767	530	3.281 0907	5 703	0	3	Cotangent
	10	5834	464	5454	141	8297	530	.280 5204	5 702	50		5800 5700
	20	6298	464	5313	142	8827	530	.279 9502	5 700	40		1 580 0 570 0
	30	6762	464	5171	142	9357	530	.279 3803	5 699	30		2 1160 0 1140 0
	40	7226	463	5030	142	9887	530	.278 8105	5 698	20		3 1740 0 1710 0
	50	7689	464	4888	141	0 305 0416	529	.278 2409	5 696	10		4 2320 0 2280 0
58	0	0.291 8153	464	0.956 4747	142	0.305 0946	530	3.277 6715	5 694	0	2	5 2900 0 2850 0
	10	8617	463	4605	142	1476	530	.277 1023	5 692	50		6 3480 0 3420 0
	20	9080	464	4464	141	2006	530	.276 5332	5 691	40		7 1060 0 3990 0
	30	9544	464	4322	142	2536	530	.275 9643	5 689	30		8 1640 0 4560 0
	40	0.292 0008	463	4181	142	3066	530	.275 3956	5 687	20		9 5220 0 5130 0
	50	0471	464	4039	141	3596	530	.274 8271	5 683	10		5600
59	0	0.292 0935	464	0.956 3898	142	0.305 4126	530	3.274 2588	5 681	0	1	1 560 0
	10	1399	463	3756	142	4656	530	.273 6907	5 680	50		2 1120 0
	20	1862	464	3614	141	5186	530	.273 1227	5 678	40		3 1680 0
	30	2326	464	3473	142	5716	531	.272 5549	5 676	30		4 2240 0
	40	2790	463	3331	142	6247	530	.271 9873	5 674	20		5 2800 0
	50	3253	464	3189	141	6777	530	.271 4199	5 673	10		6 3360 0
60	0	0.292 3717		0.956 3048		0.305 7307		3 270 8526		0	0	7 3920 0
												8 4480 0
												9 5040 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff.	"	'	Proportional Parts

73° 0'

17° 0'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
0	0	0.292 3717		0.956 3048		0.305 7307		3.270 8526		0	60	
	10	4181	464	2906	142	7837	530	270 2856	5 670	50		
	20	4644	463	2764	142	8367	530	269 7187	5 669	40		
	30	5108	464	2622	142	8897	530	269 1520	5 667	30		
	40	5572	464	2480	142	9427	530	268 5854	5 666	20		
	50	6035	463	2339	141	9958	531	268 0191	5 663	10		
			464		142		530		5 662			
1	0	0.292 6499		0.956 2197		0.306 0488		3.267 4529		0	59	
	10	6962	463	2055	142	1018	530	266 8869	5 660	50		
	20	7426	464	1913	142	1548	530	266 3211	5 658	40		
	30	7889	463	1771	142	2079	531	265 7555	5 656	30		
	40	8353	464	1629	142	2609	530	265 1900	5 655	20		
	50	8817	464	1487	142	3139	530	264 6247	5 653	10		
			463		142		531		5 651			
2	0	0.292 9280		0.956 1345		0.306 3670		3.264 0596		0	58	
	10	9744	464	1203	142	4200	530	263 4947	5 649	50		
	20	0.293 0207	463	1061	142	4730	530	262 9300	5 647	40		
	30	0671	464	0919	142	5261	531	262 3654	5 646	30		
	40	1134	463	0777	142	5791	530	261 8011	5 643	20		
	50	1598	464	0635	142	6321	530	261 2368	5 643	10		
			463		143		531		5 640			
3	0	0.293 2061		0.956 0492		0.306 6852		3.260 6728		0	57	
	10	2525	464	0350	142	7382	530	260 1090	5 638	50		
	20	2988	463	0208	142	7913	531	259 5453	5 637	40		
	30	3452	464	0066	142	8443	530	258 9818	5 635	30		
	40	3915	463	0 955 9924	142	8973	530	258 4185	5 633	20		
	50	4379	464	9781	143	9504	531	257 8554	5 631	10		
			463		142		530		5 630			
4	0	0.293 4842		0.955 9639		0.307 0034		3.257 2924		0	56	
	10	5306	464	9497	142	0565	531	256 7296	5 628	50		
	20	5769	463	9355	142	1096	531	256 1670	5 626	40		
	30	6233	464	9212	143	1626	530	255 6046	5 624	30		
	40	6696	463	9070	142	2157	531	255 0424	5 622	20		
	50	7159	463	8927	143	2687	530	254 4803	5 621	10		
			464		142		531		5 619			
5	0	0.293 7623		0.955 8785		0.307 3218		3.253 9184		0	55	
	10	8086	463	8643	142	3748	530	253 3567	5 617	50		
	20	8550	464	8500	142	4279	531	252 7952	5 615	40		
	30	9013	463	8358	142	4810	531	252 2338	5 614	30		
	40	9476	463	8215	143	5340	530	251 6726	5 612	20		
	50	9940	464	8073	142	5871	531	251 1116	5 610	10		
			463		143		531		5 608			
6	0	0.294 0403		0.955 7930		0.307 6402		3.250 5508		0	54	
	10	0867	464	7788	142	6932	530	249 9902	5 606	50		
	20	1330	463	7645	143	7463	531	249 4297	5 605	40		
	30	1793	463	7502	143	7994	531	248 8694	5 603	30		
	40	2257	464	7360	142	8525	531	248 3093	5 601	20		
	50	2720	463	7217	143	9055	530	247 7493	5 600	10		
			463		143		531		5 598			
7	0	0.294 3183		0.955 7074		0.307 9586		3.247 1895		0	53	
	10	3647	464	6932	142	0 308 0117	531	246 6300	5 595	50		
	20	4110	463	6789	143	0648	531	246 0705	5 595	40		
	30	4573	463	6646	143	1179	531	245 5113	5 592	30		
	40	5037	464	6503	143	1709	530	244 9522	5 591	20		
	50	5500	463	6361	142	2240	531	244 3933	5 589	10		
			463		143		531		5 587			
8	0	0.294 5963		0.955 6218		0.308 2771		3.243 8346		0	52	
	10	6427	464	6075	143	3302	531	243 2761	5 585	50		
	20	6890	463	5932	143	3833	531	242 7177	5 584	40		
	30	7353	463	5789	143	4364	531	242 1595	5 582	30		
	40	7816	463	5646	143	4895	531	241 6015	5 580	20		
	50	8280	464	5503	143	5426	531	241 0437	5 578	10		
			463		142		531		5 577			
9	0	0.294 8743		0.955 5361		0.308 5957		3.240 4860		0	51	
	10	9206	463	5218	143	6488	531	239 9286	5 574	50		
	20	9669	463	5075	143	7019	531	239 3712	5 574	40		
	30	0.295 0133	464	4932	143	7550	531	238 8141	5 571	30		
	40	0596	463	4789	143	8081	531	238 2572	5 569	20		
	50	1059	463	4645	144	8612	531	237 7004	5 568	10		
			463		143		531		5 566			
10	0	0.295 1522		0.955 4502		0.308 9143		3.237 1438		0	50	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff.	"	'	Proportional Parts

72° 50'

17° 10'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff.			Proportional Parts
10	0	0.295 1522		0.955 4502		0.308 9143		3.237 1438		0	50	
	10	1986	464	4359	143	9674	531	.236 5873	5 565	50		Sine
	20	2449	463	4216	143	0.309 0205	531	.236 0311	5 562	40		462 463 464
	30	2912	463	4073	143	0736	531	.235 4750	5 561	30		1 46 2 46 3 46 4
	40	3375	463	3930	143	1267	531	.234 9191	5 559	20		2 92 4 92 6 92 8
	50	3838	463	3787	143	1799	532	.234 3633	5 558	10		3 138 6 138 9 139 2
			464		144		531		5 555			4 184 8 185 2 185 6
11	0	0.295 4302		0.955 3643		0.309 2330		3 233 8078		0	49	
	10	4765	463	3500	143	2861	531	.233 2524	5 554	50		5 231 0 231 5 232 0
	20	5228	463	3357	143	3392	531	.232 6972	5 552	40		6 277 2 277 8 278 4
	30	5691	463	3214	143	3923	531	.232 1421	5 551	30		7 323 4 324 1 324 8
	40	6154	463	3070	144	4455	532	.231 5873	5 548	20		8 369 6 370 4 371 2
	50	6617	463	2927	143	4986	531	.231 0326	5 547	10		9 415 8 416 7 417 6
			464		143		531		5 546			
12	0	0.295 7081		0.955 2784		0.309 5517		3.230 4780		0	48	
	10	7544	463	2640	144	6048	531	.229 9237	5 543	50		Cosine
	20	8007	463	2497	143	6580	532	.229 3695	5 542	40		143 144 145
	30	8470	463	2353	144	7111	531	.228 8155	5 540	30		1 14 3 14 4 14 5
	40	8933	463	2210	143	7642	531	.228 2617	5 538	20		2 28 6 28 8 29 0
	50	9396	463	2067	143	8174	532	.227 7080	5 537	10		3 42 9 43 2 43 5
			463		144		531		5 534			4 57 2 57 6 58 0
13	0	0.295 9859		0.955 1923		0.309 8705		3.227 1546		0	47	
	10	0.296 0322	463	1780	143	9236	531	.226 6013	5 533	50		5 71 5 72 0 72 5
	20	0785	463	1636	144	9768	532	.226 0481	5 532	40		6 85 8 86 4 87 0
	30	1248	463	1492	144	0.310 0299	531	.225 4952	5 529	30		7 190 1 190 8 191 5
	40	1711	463	1349	143	0831	532	.224 9424	5 528	20		8 114 4 115 2 116 0
	50	2175	464	1205	143	1362	531	.224 3898	5 526	10		9 128 7 129 6 130 5
			463		144		531		5 525			
14	0	0.296 2638		0.955 1062		0.310 1893		3.223 8373		0	46	
	10	3101	463	0918	144	2425	532	.223 2851	5 522	50		Tangent
	20	3564	463	0774	144	2956	531	.222 7330	5 521	40		531 532
	30	4027	463	0631	143	3488	532	.222 1810	5 520	30		1 53 1 53 2
	40	4490	463	0487	144	4019	531	.221 6293	5 517	20		2 106 2 106 4
	50	4953	463	0343	144	4551	532	.221 0777	5 516	10		3 150 4 150 6
			463		144		532		5 514			4 212 1 212 8
15	0	0.296 5416		0.955 0199		0.310 5083		3.220 5263		0	45	
	10	5879	463	0056	143	5614	531	.219 9751	5 512	50		5 265 5 266 0
	20	6342	463	0.954 9912	144	6146	532	.219 4240	5 511	40		6 318 6 319 2
	30	6805	463	9768	144	6677	531	.218 8731	5 509	30		7 371 7 372 4
	40	7268	463	9624	144	7209	532	.218 3224	5 507	20		8 424 8 425 6
	50	7731	463	9480	144	7741	532	.217 7719	5 505	10		9 477 9 478 8
			463		144		531		5 504			
16	0	0.296 8194		0.954 9336		0.310 8272		3.217 2215		0	44	
	10	8657	463	9193	143	8804	532	.216 6713	5 502	50		Cotangent
	20	9120	463	9049	144	9336	532	.216 1213	5 500	40		5560 5540
	30	9583	463	8905	144	9867	531	.215 5714	5 499	30		1 559 0 554 0
	40	0.297 0045	462	8761	144	0.311 0399	532	.215 0217	5 497	20		2 1112 0 1108 0
	50	0508	463	8617	144	0931	532	.214 4722	5 495	10		3 1608 0 1602 0
			463		144		531		5 494			4 2224 0 2216 0
17	0	0.297 0971		0.954 8473		0.311 1462		3.213 9228		0	43	
	10	1434	463	8329	144	1994	532	.213 3737	5 491	50		5 2780 0 2770 0
	20	1897	463	8185	144	2526	532	.212 8247	5 490	40		6 3336 0 3321 0
	30	2360	463	8040	145	3058	532	.212 2758	5 489	30		7 3892 0 3878 0
	40	2823	463	7896	144	3590	532	.211 7272	5 486	20		8 4448 0 4432 0
	50	3286	463	7752	144	4121	531	.211 1787	5 485	10		9 5004 0 4986 0
			463		144		532		5 483			
18	0	0.297 3749		0.954 7608		0.311 4653		3.210 6304		0	42	
	10	4212	463	7464	144	5185	532	.210 0822	5 482	50		5520 5500
	20	4674	462	7320	144	5717	532	.209 5342	5 480	40		1 552 0 550 0
	30	5137	463	7175	145	6249	532	.208 9864	5 478	30		2 1104 0 1100 0
	40	5600	463	7031	144	6781	532	.208 4388	5 476	20		3 1656 0 1650 0
	50	6063	463	6887	144	7313	532	.207 8913	5 475	10		4 2208 0 2200 0
			463		144		532		5 473			5 2760 0 2750 0
19	0	0.297 6526		0.954 6743		0.311 7845		3.207 3440		0	41	
	10	6989	463	6598	145	8376	531	.206 7969	5 471	50		6 3312 0 3300 0
	20	7452	463	6454	144	8908	532	.206 2499	5 470	40		7 3864 0 3850 0
	30	7914	463	6310	144	9440	532	.205 7032	5 467	30		8 4416 0 4400 0
	40	8377	463	6165	145	9972	532	.205 1565	5 467	20		9 4968 0 4950 0
	50	8840	463	6021	144	0.312 0504	532	.204 6101	5 464	10		5480 5460
			463		145		532		5 463			1 548 0 545 0
20	0	0.297 9303		0.954 5876		0.312 1036		3.204 0638		0	40	
												2 1096 0 1092 0
												3 1644 0 1638 0
												4 2192 0 2184 0
												5 2740 0 2730 0
												6 3288 0 3275 0
												7 3836 0 3822 0
												8 4384 0 4368 0
												9 4932 0 4914 0
		Cosine	Diff.	Sine	Diff.	Cotangent	Diff.	Tangent	Diff.	"	'	Proportional Parts

72° 40'

17° 20'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
20	0	0.297 9303	463	0.954 5876	144	0 312 1036	533	3.204 0638	5 461	0	40	Sine
	10	9766	463	5732	144	1569	532	.203 5177	5 459	50		462 463
	20	0.298 0228	462	5587	145	2101	532	.202 9718	5 458	40		1 46 2 46 3
	30	0691	463	5443	144	2633	532	.202 4260	5 458	30		2 92 4 92 6
	40	1154	463	5298	145	3165	532	.201 8804	5 456	20		3 138 6 138 9
	50	1617	462	5154	144	3697	532	.201 3350	5 454	10		4 181 8 185 2
21	0	0.298 2079	463	0.954 5009	144	0 312 4229	532	3.200 7897	5 451	0	39	5 231 0 231 5
	10	2542	463	4865	145	4761	532	.200 2446	5 449	50		6 277 2 277 8
	20	3005	463	4720	145	5293	532	.199 6997	5 448	40		7 323 4 324 1
	30	3468	462	4575	144	5825	533	.199 1549	5 445	30		8 369 6 370 4
	40	3930	463	4431	145	6358	532	.198 6104	5 445	20		9 415 8 416 7
	50	4393	463	4286	145	6890	532	.198 0659	5 442	10		
22	0	0.298 4856	463	0.954 4141	144	0.312 7422	532	3.197 5217	5 441	0	38	Cosine
	10	5319	462	3997	145	7954	533	.196 9776	5 439	50		144 145 146
	20	5781	463	3852	145	8487	532	.196 4337	5 437	40		1 14 4 14 5 14 6
	30	6244	463	3707	145	9019	532	.195 8900	5 436	30		2 28 8 29 0 29 2
	40	6707	462	3562	144	9551	532	.195 3464	5 434	20		3 43 2 43 5 43 8
	50	7169	463	3418	145	0.313 0083	533	.194 8030	5 432	10		4 57 6 58 0 58 4
23	0	0.298 7632	463	0.954 3273	145	0.313 0616	532	3.194 2598	5 431	0	37	5 72 0 72 5 73 0
	10	8095	462	3128	145	1148	532	.193 7167	5 429	50		6 86 4 87 0 87 6
	20	8557	462	2983	145	1680	533	.193 1738	5 427	40		7 100 8 101 5 102 2
	30	9020	463	2838	145	2213	532	.192 6311	5 427	30		8 115 2 116 0 116 8
	40	9483	463	2693	145	2745	532	.192 0885	5 424	20		9 129 6 130 5 131 4
	50	9945	462	2548	145	3278	533	.191 5461	5 422	10		
24	0	0.299 0408	463	0.954 2403	145	0.313 3810	532	3.191 0039	5 421	0	36	Tangent
	10	0871	462	2258	145	4342	533	.190 4618	5 419	50		532 533
	20	1333	462	2113	145	4875	533	.189 9199	5 417	40		1 53 2 53 3
	30	1796	463	1968	145	5407	532	.189 3782	5 417	30		2 106 4 106 6
	40	2258	462	1823	145	5940	533	.188 8366	5 416	20		3 159 6 159 9
	50	2721	463	1678	145	6472	532	.188 2953	5 413	10		4 212 8 213 2
25	0	0.299 3184	462	0.954 1533	145	0.313 7005	532	3.187 7540	5 410	0	35	5 266 0 266 5
	10	3646	463	1388	145	7537	533	.187 2130	5 409	50		6 319 2 319 8
	20	4109	462	1243	145	8070	533	.186 6721	5 407	40		7 372 4 373 1
	30	4571	463	1098	146	8603	532	.186 1314	5 406	30		8 425 6 426 4
	40	5034	462	0952	145	9135	533	.185 5908	5 404	20		9 478 8 479 7
	50	5496	463	0807	145	9668	532	.185 0504	5 402	10		
26	0	0.299 5959	463	0.954 0662	145	0.314 0200	533	3.184 5102	5 400	0	34	Cotangent
	10	6422	462	0517	146	0733	533	.183 9702	5 399	50		5460 5440
	20	6884	463	0371	145	1266	532	.183 4303	5 397	40		1 546 0 544 0
	30	7347	462	0226	145	1798	533	.182 8906	5 396	30		2 1092 0 1098 0
	40	7809	463	0081	146	2331	533	.182 3510	5 394	20		3 1638 0 1632 0
	50	8272	462	0.953 9935	145	2864	532	.181 8116	5 392	10		4 2184 0 2176 0
27	0	0.299 8734	463	0.953 9790	145	0.314 3396	533	3.181 2724	5 391	0	33	5 2730 0 2720 0
	10	9197	462	9645	146	3929	533	.180 7333	5 388	50		6 3276 0 3264 0
	20	9659	463	9499	145	4462	533	.180 1945	5 388	40		7 3822 0 3808 0
	30	0.300 0122	462	9354	146	4995	532	.179 6557	5 385	30		8 4368 0 4352 0
	40	0584	463	9208	145	5527	533	.179 1172	5 384	20		9 4914 0 4896 0
	50	1047	462	9063	146	6060	533	.178 5788	5 382	10		
28	0	0.300 1509	462	0.953 8917	145	0.314 6593	533	3.178 0406	5 381	0	32	5420 5400
	10	1971	463	8772	146	7126	533	.177 5025	5 379	50		1 542 0 540 0
	20	2434	462	8626	145	7659	532	.176 9646	5 377	40		2 1081 0 1080 0
	30	2896	463	8481	145	8191	532	.176 4269	5 375	30		3 1626 0 1620 0
	40	3359	462	8335	146	8724	533	.175 8893	5 374	20		4 2168 0 2160 0
	50	3821	463	8189	145	9257	533	.175 3519	5 372	10		5 2710 0 2700 0
29	0	0.300 4284	462	0.953 8044	146	0 314 9790	533	3.174 8147	5 371	0	31	6 3252 0 3240 0
	10	4746	462	7898	146	0.315 0323	533	.174 2776	5 369	50		7 3794 0 3780 0
	20	5208	463	7752	145	0856	533	.173 7407	5 367	40		8 4336 0 4320 0
	30	5671	462	7607	146	1389	533	.173 2040	5 366	30		9 4878 0 4860 0
	40	6133	463	7461	146	1922	533	.172 6674	5 364	20		
	50	6596	462	7315	145	2455	533	.172 1310	5 362	10		5380 5360
30	0	0.300 7058		0.953 7170		0.315 2988		3.171 5948		0	30	1 538 0 536 0
												2 1076 0 1072 0
												3 1614 0 1608 0
												4 2152 0 2144 0
												5 2690 0 2680 0
												6 3228 0 3216 0
												7 3766 0 3752 0
												8 4304 0 4288 0
												9 4842 0 4824 0
		Cosine	Diff.	Sine	Diff.	Cotangent	Diff.	Tangent	Diff.	"	'	Proportional Parts

72° 30'

17° 30'

'	"	Sine	Diff.	Cosine	Diff.	Tangent	Diff.	Cotangent	Diff.			Proportional Parts
30	0	0.300 7058		0.953 7170		0.315 2988		3 171 5948		0	30	
	10	7520	462	7024	146	3521	533	.171 0587	5 361	50		Sine
	20	7983	463	6878	146	4054	533	.170 5228	5 359	40		462 463
	30	8445	462	6732	146	4587	533	.169 9871	5 357	30		1 46 2 46 3
	40	8907	462	6586	146	5120	533	.169 4515	5 356	20		2 92 4 92 6
	50	9370	463	6440	146	5653	533	.168 9161	5 354	10		3 138 6 138 9
			462		146		533		5 353			4 184 8 185 2
31	0	0.300 9832		0.953 6294		0.315 6186		3 168 3808		0	29	
	10	0.301 0294	462	6148	146	6719	533	.167 8457	5 351	50		5 231 0 231 5
	20	0757	463	6002	146	7252	533	.167 3108	5 349	40		6 277 2 277 8
	30	1219	462	5857	145	7786	534	.166 7761	5 347	30		7 323 4 324 1
	40	1681	462	5711	146	8319	533	.166 2415	5 346	20		8 369 6 370 4
	50	2144	463	5565	146	8852	533	.165 7070	5 345	10		9 415 8 416 7
			462		147		533		5 342			
32	0	0.301 2606		0.953 5418		0.315 9385		3.165 1728		0	28	
	10	3068	462	5272	146	9918	533	.164 6387	5 341	50		Cosine
	20	3531	463	5126	146	10452	534	.164 1047	5 340	40		145 146 147
	30	3993	462	4980	146	0985	533	.163 5710	5 337	30		1 14 5 14 6 14 7
	40	4455	462	4834	146	1518	533	.163 0374	5 336	20		2 29 0 29 2 29 4
	50	4917	462	4688	146	2051	533	.162 5039	5 335	10		3 43 5 43 8 44 1
			463		146		534		5 333			4 58 0 58 4 58 8
33	0	0.301 5380		0.953 4542		0.316 2585		3.161 9706		0	27	
	10	5842	462	4396	146	3118	533	.161 4375	5 331	50		5 72 5 73 0 73 5
	20	6304	462	4249	147	3651	533	.160 9046	5 329	40		6 87 0 87 6 88 2
	30	6766	462	4103	146	4185	534	.160 3718	5 328	30		7 101 5 102 2 102 9
	40	7229	463	3957	146	4718	533	.159 8391	5 327	20		8 116 0 116 8 117 6
	50	7691	462	3810	147	5251	533	.159 3067	5 324	10		9 130 5 131 4 132 3
			462		146		534		5 323			
34	0	0.301 8153		0.953 3664		0.316 5785		3 158 7744		0	26	
	10	8615	462	3518	146	6318	533	.158 2422	5 322	50		Tangent
	20	9077	462	3371	147	6852	534	.157 7102	5 320	40		533 534
	30	9540	463	3225	146	7385	533	.157 1784	5 318	30		1 53 3 53 4
	40	0.302 0002	462	3079	146	7919	534	.156 6468	5 316	20		2 106 6 106 8
	50	0464	462	2932	147	8452	533	.156 1153	5 315	10		3 159 9 160 2
			462		146		534		5 313			4 213 2 213 6
35	0	0.302 0926		0.953 2786		0.316 8986		3 155 5840		0	25	
	10	1388	462	2639	147	9519	533	.155 0528	5 312	50		5 266 5 267 0
	20	1850	462	2493	146	10053	534	.154 5218	5 310	40		6 319 8 320 4
	30	2313	463	2346	146	0586	533	.153 9910	5 308	30		7 373 1 373 8
	40	2775	462	2200	147	1120	534	.153 4603	5 307	20		8 426 4 427 2
	50	3237	462	2053	146	1653	533	.152 9298	5 305	10		9 479 7 480 6
			462		146		534		5 304			
36	0	0.302 3699		0.953 1907		0.317 2187		3.152 3994		0	24	
	10	4161	462	1760	147	2720	533	.151 8692	5 302	50		Cotangent
	20	4623	462	1613	147	3254	534	.151 3392	5 300	40		5360 5340
	30	5085	462	1467	146	3788	534	.150 8093	5 299	30		1 536 0 534 0
	40	5547	462	1320	147	4321	533	.150 2796	5 297	20		2 1072 0 1068 0
	50	6009	462	1173	146	4855	534	.149 7501	5 295	10		3 1608 0 1602 0
			462		146		534		5 294			4 2114 0 2136 0
37	0	0.302 6471		0.953 1027		0.317 5389		3.149 2207		0	23	
	10	6934	463	0880	147	5922	533	.148 6915	5 292	50		5 2680 0 2670 0
	20	7396	462	0733	147	6456	534	.148 1624	5 291	40		6 3216 0 3204 0
	30	7858	462	0586	147	6990	534	.147 6335	5 289	30		7 3752 0 3738 0
	40	8320	462	0440	146	7524	533	.147 1048	5 287	20		8 4288 0 4272 0
	50	8782	462	0293	147	8057	534	.146 5762	5 286	10		9 4824 0 4806 0
			462		147		534		5 284			
38	0	0.302 9244		0.953 0146		0.317 8591		3.146 0478		0	22	
	10	9706	462	0999	147	9125	534	.145 5196	5 282	50		5320 5300
	20	0.303 0168	462	9852	147	9659	534	.144 9915	5 281	40		1 532 0 530 0
	30	0630	462	9705	147	0193	534	.144 4635	5 280	30		2 1064 0 1060 0
	40	1092	462	9558	147	0727	534	.143 9358	5 277	20		3 1596 0 1590 0
	50	1554	462	9411	147	1260	533	.143 4082	5 276	10		4 2128 0 2120 0
			462		147		534		5 275			5 2660 0 2650 0
39	0	0.303 2016		0.952 9264		0.318 1794		3.142 8807		0	21	
	10	2478	462	9117	147	2328	534	.142 3534	5 273	50		6 3192 0 3180 0
	20	2940	462	8970	147	2862	534	.141 8263	5 271	40		7 3724 0 3710 0
	30	3402	462	8823	147	3396	534	.141 2994	5 269	30		8 4256 0 4240 0
	40	3864	462	8676	147	3930	534	.140 7725	5 269	20		9 4788 0 4770 0
	50	4326	462	8529	147	4464	534	.140 2459	5 266	10		5280 5260
			462		147		534		5 265			1 528 0 526 0
40	0	0.303 4788		0.952 8382		0.318 4998		3.139 7194		0	20	
												2 1056 0 1052 0
												3 1584 0 1578 0
												4 2112 0 2104 0
												5 2640 0 2630 0
												6 3168 0 3156 0
												7 3696 0 3682 0
												8 4224 0 4208 0
												9 4752 0 4734 0
		Cosine	Diff.	Sine	Diff.	Cotangent	Diff.	Tangent	Diff.	"	'	Proportional Parts

72° 20'

17° 40'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff.			Proportional Parts
40	0	0.303 4788		0.952 8382		0.318 4998		3.139 7194		0	20	
	10	5250	462	8235	147	5532	534	.139 1931	5 263	50		Sine
	20	5712	462	8088	147	6066	534	.138 6669	5 262	40		461 462
	30	6174	462	7941	147	6600	534	.138 1409	5 260	30		1 16 1 46 2
	40	6635	461	7793	148	7134	534	.137 6151	5 258	20		2 92 2 92 4
	50	7097	462	7646	147	7668	534	.137 0894	5 257	10		3 138 3 138 6
			462		147		534		5 255			4 184 4 184 8
41	0	0.303 7559		0.952 7499		0.318 8202		3.136 5639		0	19	
	10	8021	462	7352	147	8736	534	.136 0385	5 254	50		5 230 5 231 0
	20	8483	462	7204	148	9270	534	.135 5133	5 252	40		6 276 6 277 2
	30	8945	462	7057	147	9805	535	.134 9883	5 250	30		7 322 7 323 4
	40	9407	462	6910	147	0 319 0339	534	.134 4634	5 249	20		8 368 8 369 6
	50	9869	462	6762	148	0873	534	.133 9387	5 247	10		9 414 9 415 8
			462		147		534		5 246			
42	0	0 304 0331		0.952 6615		0.319 1407		3.133 4141		0	18	
	10	0792	461	6467	148	1941	534	.132 8897	5 244	0		Cosine
	20	1254	462	6320	147	2476	535	.132 3655	5 242	50		147 148 149
	30	1716	462	6173	147	3010	534	.131 8414	5 241	40		2 29 4 29 6 29 8
	40	2178	462	6025	148	3544	534	.131 3174	5 240	30		3 44 1 44 4 44 7
	50	2640	462	5878	148	4078	534	.130 7937	5 237	20		4 58 8 59 2 59 6
			462		147		535		5 236	10		5 73 5 74 0 74 5
43	0	0.304 3102		0.952 5730		0.319 4613		3.130 2701		0	17	
	10	3563	461	5582	148	5147	534	.129 7466	5 235	50		6 88 2 88 8 89 4
	20	4025	462	5435	147	5681	534	.129 2233	5 233	40		7 102 9 103 6 104 3
	30	4487	462	5287	148	6215	534	.128 7002	5 231	30		8 117 6 118 4 119 2
	40	4949	462	5140	147	6750	535	.128 1772	5 230	20		9 132 3 133 2 134 1
	50	5411	462	4992	148	7284	534	.127 6544	5 228	10		
			461		148		535		5 227			Tangent
44	0	0.304 5872		0.952 4844		0.319 7819		3.127 1317		0	16	
	10	6334	462	4697	147	8353	534	.126 6092	5 225	50		534 535
	20	6796	462	4549	148	8887	534	.126 0869	5 223	40		1 53 4 53 5
	30	7258	462	4401	148	9422	535	.125 5647	5 222	30		2 106 8 107 0
	40	7720	462	4254	147	9956	534	.125 0427	5 220	20		3 160 2 160 5
	50	8181	461	4106	148	0 320 0491	535	.124 5208	5 219	10		4 213 6 214 0
			462		148		534		5 217			5 267 0 267 5
45	0	0 304 8643		0.952 3958		0.320 1025		3.123 9991		0	15	
	10	9105	462	3810	148	1560	535	.123 4776	5 215	50		6 320 4 321 0
	20	9566	461	3662	148	2094	534	.122 9562	5 214	40		7 373 8 374 5
	30	0 305 0028	462	3514	148	2629	535	.122 4349	5 213	30		8 427 2 428 0
	40	0490	462	3367	147	3163	534	.121 9139	5 210	20		9 480 6 481 5
	50	0952	462	3219	148	3698	535	.121 3929	5 210	10		
			461		148		534		5 207			Cotangent
46	0	0 305 1413		0.952 3071		0.320 4232		3.120 8722		0	14	
	10	1875	462	2923	148	4767	535	.120 3516	5 206	50		5260 5240
	20	2337	462	2775	148	5302	535	.119 8311	5 205	40		1 526 0 524 0
	30	2798	461	2627	148	5836	534	.119 3108	5 203	30		2 1052 0 1048 0
	40	3260	462	2479	148	6371	535	.118 7907	5 201	20		3 1578 0 1572 0
	50	3722	461	2331	148	6906	534	.118 2707	5 200	10		4 2104 0 2096 0
			462		148		535		5 198			5 2640 0 2620 0
47	0	0 305 4183		0.952 2183		0 320 7440		3.117 7509		0	13	
	10	4645	462	2035	148	7975	535	.117 2313	5 196	50		6 3156 0 3144 0
	20	5107	462	1887	148	8510	534	.116 7118	5 195	40		7 3682 0 3668 0
	30	5568	461	1738	149	9044	534	.116 1924	5 194	30		8 4208 0 4192 0
	40	6030	462	1590	148	9579	535	.115 6732	5 192	20		9 4734 0 4716 0
	50	6491	461	1442	148	0 321 0114	535	.115 1542	5 190	10		
			462		148		534		5 189			5220 5200
48	0	0.305 6953		0.952 1294		0.321 0649		3.114 6353		0	12	
	10	7415	462	1146	148	1184	535	.114 1166	5 187	50		1 522 0 520 0
	20	7876	461	0997	149	1718	534	.113 5980	5 186	40		2 1014 0 1040 0
	30	8338	462	0849	148	2253	535	.113 0796	5 184	30		3 1566 0 1560 0
	40	8799	461	0701	148	2788	535	.112 5614	5 182	20		4 2088 0 2080 0
	50	9261	462	0553	149	3323	535	.112 0433	5 181	10		5 2610 0 2600 0
			462		149		535		5 179			6 3132 0 3120 0
49	0	0.305 9723		0.952 0404		0.321 3858		3.111 5254		0	11	
	10	0.306 0184	461	0256	148	4393	535	.111 0076	5 178	50		7 3654 0 3640 0
	20	0646	462	0108	148	4928	535	.110 4899	5 177	40		8 4176 0 4160 0
	30	1107	461	0959	149	5463	535	.109 9725	5 174	30		9 4698 0 4680 0
	40	1569	462	9811	148	5997	534	.109 4552	5 173	20		5180 5170
	50	2030	461	9662	149	6532	535	.108 9380	5 172	10		1 518 0 517 0
			462		148		535		5 170			2 1036 0 1034 0
50	0	0.306 2492		0.951 9514		0.321 7067		3.108 4210		0	10	
												3 1554 0 1551 0
												4 2072 0 2068 0
												5 2590 0 2585 0
												6 3108 0 3102 0
												7 3626 0 3619 0
												8 4144 0 4136 0
												9 4662 0 4653 0
		Cosine	Diff	Sine	Diff.	Cotangent	Diff.	Tangent	Diff.	"	'	Proportional Parts

72° 10'

17° 50'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
50	0	0 306 2492		0.951 9514		0.321 7067		3.108 4210		0	10	
	10	2953	461	9365	149	7602	535	.107 9042	5 168	50		Sine
	20	3415	462	9217	148	8137	535	.107 3875	5 167	40		461 462
	30	3876	461	9068	149	8672	535	.106 8709	5 166	30		1 46 1 46 2
	40	4338	462	8920	148	9208	536	.106 3546	5 163	20		2 92 2 92 4
	50	4799	461	8771	149	9743	535	.105 8383	5 163	10		3 138 3 138 6
			462		148		535		5 160			4 184 4 184 8
51	0	0.306 5261		0.951 8623		0.322 0278		3.105 3223		0	9	
	10	5722	461	8474	149	0813	535	.104 8064	5 159	50		5 230 5 231 0
	20	6184	462	8325	149	1348	535	.104 2906	5 158	40		6 276 6 277 2
	30	6645	461	8177	148	1883	535	.103 7750	5 156	30		7 322 7 323 4
	40	7107	462	8028	149	2418	535	.103 2596	5 154	20		8 368 8 369 6
	50	7568	461	7879	149	2953	535	.102 7443	5 153	10		9 414 9 415 8
			462		148		536		5 152			
52	0	0 306 8030		0.951 7731		0.322 3489		3.102 2291		0	8	
	10	8491	461	7582	149	4024	535	.101 7142	5 149	50		Cosine
	20	8952	461	7433	149	4559	535	.101 1993	5 149	40		148 149 150
	30	9414	462	7284	149	5094	535	.100 6847	5 146	30		1 14 8 14 9 15 0
	40	9875	461	7135	149	5629	535	.100 1702	5 145	20		2 20 6 20 8 30 0
	50	0 307 0337	462	6987	148	6165	536	.099 6558	5 144	10		3 44 4 44 7 45 0
			461		149		535		5 142			4 59 2 59 6 60 0
53	0	0.307 0798		0.951 6838		0.322 6700		3.099 1416		0	7	
	10	1259	461	6689	149	7235	535	.098 6275	5 141	50		5 74 0 74 5 75 0
	20	1721	462	6540	149	7771	536	.098 1136	5 139	40		6 88 8 89 4 90 0
	30	2182	461	6391	149	8306	535	.097 5999	5 137	30		7 103 6 104 3 105 0
	40	2643	461	6242	149	8841	535	.097 0863	5 136	20		8 118 4 119 2 120 0
	50	3105	462	6093	149	9377	536	.096 5729	5 134	10		9 133 2 134 1 135 0
			461		149		535		5 133			
54	0	0.307 3566		0.951 5944		0.322 9912		3.096 0596		0	6	
	10	4028	462	5795	149	0323 0447	535	.095 5465	5 131	50		Tangent
	20	4489	461	5646	149	0983	536	.095 0335	5 130	40		535 536
	30	4950	462	5497	149	1518	535	.094 5207	5 128	30		1 53 5 53 6
	40	5412	462	5348	149	2054	536	.094 0080	5 127	20		2 107 0 107 2
	50	5873	461	5199	149	2589	535	.093 4955	5 125	10		3 190 5 160 8
			461		149		536		5 124			4 214 0 214 4
55	0	0.307 6334		0.951 5050		0.323 3125		3.092 9831		0	5	
	10	6795	461	4900	150	3660	535	.092 4709	5 122	50		5 267 5 268 0
	20	7257	462	4751	149	4196	536	.091 9589	5 120	40		6 321 0 321 6
	30	7718	461	4602	149	4731	535	.091 4470	5 119	30		7 374 5 375 2
	40	8179	462	4453	149	5267	536	.090 9352	5 118	20		8 428 0 428 8
	50	8641	461	4304	150	5802	535	.090 4237	5 115	10		9 481 5 482 4
			461		150		536		5 115			
56	0	0.307 9102		0.951 4154		0.323 6338		3 089 9122		0	4	
	10	9563	461	4005	149	6873	535	.089 4009	5 113	50		Cotangent
	20	0 308 0024	461	3856	149	7409	536	.088 8898	5 111	40		5160 5140
	30	0486	462	3706	150	7945	536	.088 3788	5 110	30		1 516 0 514 0
	40	0947	461	3557	149	8480	535	.087 8680	5 108	20		2 1032 0 1028 0
	50	1408	461	3408	150	9016	536	.087 3573	5 107	10		3 1548 0 1542 0
			461		150		536		5 105			4 2064 0 2056 0
57	0	0.308 1869		0.951 3258		0.323 9562		3.086 8468		0	3	
	10	2330	462	3109	149	0324 0087	535	.086 3364	5 104	50		5 2580 0 2570 0
	20	2792	461	2959	150	0623	536	.085 8262	5 102	40		6 3096 0 3084 0
	30	3253	461	2810	149	1159	536	.085 3162	5 100	30		7 3612 0 3598 0
	40	3714	461	2660	150	1695	535	.084 8063	5 099	20		8 4128 0 4112 0
	50	4175	461	2511	150	2230	535	.084 2965	5 098	10		9 4644 0 4626 0
			461		150		536		5 096			
58	0	0.308 4636		0.951 2361		0.324 2766		3.083 7869		0	2	
	10	5098	462	2212	149	3302	536	.083 2775	5 094	50		5120 5100
	20	5559	461	2062	150	3838	536	.082 7682	5 093	40		1 512 0 510 0
	30	6020	461	1913	149	4374	536	.082 2590	5 092	30		2 1024 0 1020 0
	40	6481	461	1763	150	4910	536	.081 7500	5 090	20		3 1536 0 1530 0
	50	6942	461	1613	149	5445	535	.081 2412	5 088	10		4 2048 0 2040 0
			461		149		536		5 087			5 2560 0 2550 0
59	0	0.308 7403		0.951 1464		0.324 5981		3.080 7325		0	1	
	10	7864	461	1314	150	6517	536	.080 2239	5 086	50		6 3072 0 3060 0
	20	8326	462	1164	150	7053	536	.079 7156	5 083	40		7 3584 0 3570 0
	30	8787	461	1015	149	7589	536	.079 2073	5 083	30		8 4096 0 4080 0
	40	9248	461	865	150	8125	536	.078 6992	5 081	20		9 4608 0 4590 0
	50	9709	461	715	150	8661	536	.078 1913	5 079	10		5080
			461		150		536		5 078			1 508 0
60	0	0.309 0170		0.951 0565		0.324 9197		3.077 6835		0	0	
												2 1016 0
												3 1524 0
												4 2032 0
												5 2540 0
												6 3048 0
												7 3556 0
												8 4064 0
												9 4572 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

72° 0'

"	'	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff	"	'	Proportional Parts
0	0	0.309 0170		0.951 0565		0.324 9197		3.077 6835		0	60	Sine
	10	0631	461	0415	150	9733	536	.077 1759	5 076	50		460 461
	20	1092	461	0265	150	0.325 0269	536	.076 6684	5 075	40		1 46 0 46 1
	30	1553	461	0116	149	0805	536	.076 1611	5 073	30		2 92 0 92 2
	40	2014	461	0 950 9966	150	1341	536	.075 6539	5 072	20		3 138 0 138 3
	50	2475	461	9816	150	1877	536	.075 1469	5 070	10		4 184 0 184 4
			461		150		536		5 069			5 230 0 230 5
1	0	0.309 2936		0.950 9666		0.325 2413		3.074 6400		0	59	Sine
	10	3397	461	9516	150	2949	536	.074 1333	5 067	50		6 276 0 276 6
	20	3858	461	9366	150	3485	536	.073 6268	5 065	40		7 322 0 322 7
	30	4319	461	9216	150	4022	537	.073 1203	5 063	30		8 368 0 368 8
	40	4780	461	9066	150	4558	536	.072 6141	5 062	20		9 414 0 414 9
	50	5241	461	8916	150	5094	536	.072 1079	5 062	10		Cosine
			461		150		536		5 059			149 150
2	0	0.309 5702		0.950 8766		0.325 5630		3 071 6020		0	58	Sine
	10	6163	461	8616	150	6166	536	.071 0962	5 058	50		1 14 9 15 0
	20	6624	461	8466	151	6703	537	.071 0962	5 057	40		2 29 8 30 0
	30	7085	461	8315	151	7239	536	.070 5905	5 055	30		3 44 7 45 0
	40	7546	461	8165	150	7775	536	.070 0850	5 054	20		4 59 6 60 0
	50	8007	461	8015	150	8311	536	.069 5796	5 052	10		5 74 5 75 0
			461		150		537	.069 0744	5 050			6 89 4 90 0
3	0	0.309 8463		0.950 7865		0.325 8848		3.068 5694		0	57	Sine
	10	8929	461	7715	150	9384	536	.068 0644	5 050	50		7 104 3 105 0
	20	9390	461	7564	151	9920	536	.067 5597	5 047	40		8 119 2 121 0
	30	9851	461	7414	150	0.326 0457	537	.067 0551	5 046	30		9 134 1 135 0
	40	0 310 0312	461	7264	150	0993	536	.066 5506	5 045	20		1 15 1 15 2
	50	0773	461	7113	151	1529	536	.066 0463	5 043	10		2 30 2 30 4
			461		150		537		5 042			3 45 3 45 6
4	0	0.310 1234		0.950 6963		0.326 2066		3.065 5421		0	56	Sine
	10	1695	461	6813	150	2602	536	.065 0381	5 040	50		4 60 4 60 8
	20	2156	461	6662	151	3139	537	.064 5343	5 038	40		5 75 5 76 0
	30	2617	461	6512	150	3675	536	.064 0305	5 036	30		6 90 6 91 2
	40	3077	460	6362	150	4212	537	.063 5270	5 035	20		7 105 7 106 4
	50	3538	461	6211	151	4748	536	.063 0236	5 034	10		8 120 8 121 6
			461		150		536		5 033			9 135 9 136 8

18° 10'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
10	0	0.311 7822		0.950 1536		0.328 1387		3.047 4915		0	50	
	10	8283	461	1385	151	1924	537	.046 9929	4 986	50		
	20	8743	460	1234	151	2461	537	.046 4944	4 985	40		
	30	9204	461	1082	152	2998	537	.045 9960	4 984	30		
	40	9664	460	0931	151	3535	537	.045 4978	4 982	20		
	50	0.312 0125	461	0780	151	4073	538	.044 9997	4 981	10		
			461		151		537		4 979			
11	0	0.312 0586		0.950 0629		0.328 4610		3.044 5018		0	49	
	10	1046	460	0477	152	5147	537	.044 0040	4 978	50		
	20	1507	461	0326	151	5684	537	.043 5063	4 977	40		
	30	1967	460	0175	151	6221	537	.043 0089	4 974	30		
	40	2428	461	0023	152	6758	537	.042 5115	4 972	20		
	50	2889	460	0.949 9872	151	7295	538	.042 0143	4 970	10		
12	0	0.312 3349		0.949 9721		0.328 7833		3.041 5173		0	48	
	10	3810	461	9569	152	8370	537	.041 0204	4 969	50		
	20	4270	460	9418	151	8907	537	.040 5236	4 968	40		
	30	4731	461	9266	152	9444	537	.040 0270	4 966	30		
	40	5191	460	9115	151	9982	538	.039 5306	4 964	20		
	50	5652	461	8963	152	0.329 0519	537	.039 0342	4 964	10		
			460		151		537		4 961			
13	0	0.312 6112		0.949 8812		0.329 1056		3.038 5381		0	47	
	10	6573	461	8660	152	1594	538	.038 0420	4 961	50		
	20	7033	460	8508	152	2131	537	.037 5462	4 958	40		
	30	7494	461	8357	151	2668	537	.037 0504	4 958	30		
	40	7954	460	8205	152	3206	538	.036 5549	4 955	20		
	50	8415	461	8053	152	3743	537	.036 0594	4 955	10		
			460		151		538		4 953			
14	0	0.312 8875		0.949 7902		0.329 4281		3.035 5641		0	46	
	10	9336	461	7750	152	4818	537	.035 0690	4 951	50		
	20	9796	460	7598	152	5355	537	.034 5740	4 950	40		
	30	0.313 0257	461	7447	151	5893	538	.034 0791	4 949	30		
	40	0717	460	7295	152	6430	537	.033 5844	4 947	20		
	50	1178	461	7143	152	6968	538	.033 0898	4 946	10		
			460		152		537		4 944			
15	0	0.313 1638		0.949 6991		0.329 7505		3.032 5954		0	45	
	10	2098	460	6839	152	8043	538	.032 1011	4 943	50		
	20	2559	461	6688	151	8581	538	.031 6070	4 941	40		
	30	3019	461	6536	152	9118	537	.031 1130	4 940	30		
	40	3480	460	6384	152	9656	538	.030 6192	4 938	20		
	50	3940	460	6232	152	0.330 0193	537	.030 1255	4 937	10		
			460		152		538		4 935			
16	0	0.313 4400		0.949 6080		0.330 0731		3.029 6320		0	44	
	10	4861	461	5928	152	1269	538	.029 1386	4 934	50		
	20	5321	460	5776	152	1806	537	.028 6453	4 933	40		
	30	5782	461	5624	152	2344	538	.028 1522	4 931	30		
	40	6242	460	5472	152	2882	538	.027 6592	4 930	20		
	50	6702	461	5320	152	3419	537	.027 1664	4 928	10		
			461		152		538		4 927			
17	0	0.313 7163		0.949 5168		0.330 3957		3.026 6737		0	43	
	10	7623	460	5016	152	4495	538	.026 1812	4 925	50		
	20	8083	461	4864	152	5033	538	.025 6888	4 924	40		
	30	8544	461	4711	153	5570	537	.025 1965	4 923	30		
	40	9004	460	4559	152	6108	538	.024 7044	4 921	20		
	50	9464	461	4407	152	6646	538	.024 2125	4 919	10		
			461		152		538		4 918			
18	0	0.313 9925		0.949 4255		0.330 7184		3.023 7207		0	42	
	10	0.314 0385	460	4103	152	7722	538	.023 2290	4 917	50		
	20	0845	460	3950	153	8260	538	.022 7375	4 915	40		
	30	1305	461	3798	152	8797	537	.022 2461	4 914	30		
	40	1766	461	3646	152	9335	538	.021 7549	4 912	20		
	50	2226	460	3493	153	9873	538	.021 2638	4 911	10		
			460		152		538		4 910			
19	0	0.314 2686		0.949 3341		0.331 0411		3.020 7728		0	41	
	10	3146	460	3189	152	0949	538	.020 2820	4 908	50		
	20	3607	461	3036	153	1487	538	.019 7913	4 907	40		
	30	4067	460	2884	152	2025	538	.019 3008	4 905	30		
	40	4527	460	2731	153	2563	538	.018 8105	4 903	20		
	50	4987	461	2579	152	3101	538	.018 3202	4 903	10		
			461		153		538		4 901			
20	0	0.314 5448		0.949 2426		0.331 3639		3.017 8301		0	40	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

71° 40'

18° 20'

"	'	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff.			Proportional Parts
20	0	0.314 5448		0.949 2426		0.331 3639		3.017 8301		0	40	
	10	5908	460	2274	152	4177	538	.017 3402	4 899	50		Sine
	20	6368	460	2121	153	4715	538	.016 8504	4 898	40		459 460 461
	30	6828	460	1969	152	5253	538	.016 3607	4 897	30		1 45 9 46 0 92 2
	40	7288	460	1816	153	5791	538	.015 8712	4 895	20		3 137 7 138 0 138 3
	50	7748	461	1664	152	6330	539	.015 3818	4 894	10		4 183 6 184 0 184 4
21	0	0.314 8209		0.949 1511		0.331 6868		3.014 8926		0	39	
	10	8669	460	1358	153	7406	538	.014 4035	4 891	50		5 229 5 230 0 230 5
	20	9129	460	1206	152	7944	538	.013 9146	4 889	40		6 275 4 276 0 276 6
	30	9589	460	1053	153	8482	538	.013 4258	4 888	30		7 321 3 322 0 322 7
	40	0.315 0049	460	0900	152	9020	539	.012 9371	4 887	20		8 367 2 368 0 368 8
	50	0509	460	0748	153	9559	538	.012 4486	4 885	10		9 413 1 414 0 414 9
22	0	0.315 0969		0.949 0595		0.332 0097		3.011 9603		0	38	
	10	1430	461	0442	153	0635	538	.011 4720	4 883	50		Cosine
	20	1890	460	0289	153	1173	538	.010 9839	4 881	40		152 153 154
	30	2350	460	0136	152	1712	539	.010 4960	4 879	30		1 15 2 15 3 15 4
	40	2810	460	0.948 9884	153	2250	538	.010 0082	4 878	20		2 30 1 30 6 30 8
	50	3270	450	9831	153	2788	539	.009 5205	4 877	10		3 45 6 45 9 46 2
23	0	0.315 3730		0.948 9678		0.332 3327		3.009 0330		0	37	
	10	4190	460	9525	153	3865	538	.008 5456	4 874	50		4 60 8 61 2 61 6
	20	4650	460	9372	153	4404	539	.008 0584	4 872	40		5 76 0 76 5 77 0
	30	5110	460	9219	153	4942	538	.007 5713	4 871	30		6 91 2 91 8 92 4
	40	5570	460	9066	153	5480	539	.007 0844	4 869	20		7 106 1 107 1 107 8
	50	6030	460	8913	153	6019	538	.006 5976	4 868	10		8 121 6 122 4 123 2
24	0	0.315 6490		0.948 8760		0.332 6557		3.006 1109		0	36	
	10	6950	460	8607	153	7096	539	.005 6244	4 865	50		Tangent
	20	7410	460	8454	153	7634	538	.005 1380	4 864	40		538 539
	30	7870	460	8301	153	8173	539	.004 6518	4 862	30		1 53 8 53 9
	40	8330	460	8148	153	8711	538	.004 1657	4 861	20		2 107 6 107 8
	50	8790	460	7995	153	9250	539	.003 6797	4 860	10		3 161 1 161 7
25	0	0.315 9250		0.948 7842		0.332 9788		3.003 1939		0	35	
	10	9710	460	7688	154	0.333 0327	539	.002 7082	4 857	50		4 215 2 215 6
	20	0.316 0170	460	7535	153	0866	538	.002 2227	4 855	40		5 269 0 269 5
	30	0630	460	7382	153	1404	539	.001 7373	4 854	30		6 322 8 323 4
	40	1090	460	7229	153	1943	538	.001 2521	4 852	20		7 376 6 377 3
	50	1550	460	7075	154	2481	539	.000 7669	4 852	10		8 430 4 431 2
26	0	0.316 2010		0.948 6922		0.333 3020		3.000 2820		0	34	
	10	2470	460	6769	153	3559	539	2.999 7972	4 848	50		Cotangent
	20	2930	460	6615	154	4097	538	.999 3125	4 847	40		4900 4880
	30	3390	460	6462	153	4636	539	.998 8279	4 846	30		1 190 0 198 0
	40	3850	460	6309	154	5175	539	.998 3435	4 844	20		2 980 0 976 0
	50	4310	460	6155	153	5714	538	.997 8593	4 842	10		3 1170 0 1161 0
27	0	0.316 4770		0.948 6002		0.333 6252		2.997 3751		0	33	
	10	5230	460	5849	153	6791	539	.996 8912	4 839	50		4 1960 0 1952 0
	20	5689	459	5695	154	7330	539	.996 4073	4 839	40		5 2150 0 2110 0
	30	6149	460	5542	153	7869	539	.995 9236	4 837	30		6 322 8 323 4
	40	6609	460	5388	154	8408	539	.995 4401	4 835	20		7 3430 0 3416 0
	50	7069	460	5235	153	8946	538	.994 9566	4 835	10		8 3920 0 3901 0
28	0	0.316 7529		0.948 5081		0.333 9485		2.994 4734		0	32	
	10	7989	460	4927	154	0.334 0024	539	.993 9902	4 832	50		9 4410 0 4392 0
	20	8449	460	4774	153	0563	539	.993 5072	4 830	40		4860 4840
	30	8908	459	4620	154	1102	539	.993 0244	4 828	30		1 486 0 481 0
	40	9368	460	4467	153	1641	539	.992 5417	4 827	20		2 972 0 968 0
	50	9828	460	4313	154	2180	539	.992 0591	4 826	10		3 1158 0 1152 0
29	0	0.317 0288		0.948 4159		0.334 2719		2.991 5766		0	31	
	10	0748	460	4005	154	3258	539	.991 0944	4 822	50		4 1944 0 1936 0
	20	1207	459	3852	153	3797	539	.990 6122	4 820	40		5 2130 0 2120 0
	30	1667	460	3698	154	4336	539	.990 1302	4 819	30		6 2916 0 2904 0
	40	2127	460	3544	154	4875	539	.989 6483	4 817	20		7 3102 0 3188 0
	50	2587	460	3390	153	5414	539	.989 1666	4 817	10		8 3888 0 3872 0
30	0	0.317 3047		0.948 3237		0.334 5953		2.988 6850		0	30	
									4 816			9 4374 0 4356 0
												4820
												1 482 0
												2 964 0
												3 1446 0
												4 1928 0
												5 2410 0
												6 2892 0
												7 3374 0
												8 3856 0
												9 4338 0

18° 30'

'	"	Sine	Diff.	Cosine	Diff.	Tangent	Diff.	Cotangent	Diff.			Proportional Parts
30	0	0.317 3047		0.948 3237		0.334 5953		2.988 6850		0	30	
	10	3506	459	3083	154	6492	539	.988 2035	4 815	50		Sine
	20	3966	460	2929	154	7031	539	.987 7222	4 813	40		459 460
	30	4426	460	2775	154	7571	540	.987 2410	4 812	30		1 45 9 46 0
	40	4886	459	2621	154	8110	539	.986 7600	4 810	20		2 91 8 92 0
	50	5345	460	2467	154	8649	539	.986 2791	4 808	10		3 137 7 138 0
31	0	0.317 5805		0.948 2313		0.334 9188		2.985 7983		0	29	
	10	6265	460	2159	154	9727	539	.985 3177	4 806	50		4 183 6 184 0
	20	6724	459	2005	154	0.335 0266	539	.984 8372	4 805	40		5 229 5 230 0
	30	7184	460	1851	154	0806	540	.984 3569	4 803	30		6 275 4 276 0
	40	7644	459	1697	154	1345	539	.983 8766	4 803	20		7 321 3 322 0
	50	8103	460	1543	154	1884	539	.983 3966	4 800	10		8 367 2 368 0
32	0	0.317 8663		0.948 1389		0.335 2424		2.982 9166		0	28	
	10	9023	460	1235	154	2963	539	.982 4369	4 797	50		Cosine
	20	9482	459	1081	154	3502	539	.981 9572	4 797	40		154 155 156
	30	9942	460	0927	154	4042	540	.981 4777	4 795	30		1 15 1 15 5 15 6
	40	0 318 0402	459	0772	155	4581	539	.980 9983	4 794	20		2 30 8 31 0 31 2
	50	0861	460	0618	154	5120	539	.980 5191	4 792	10		3 46 2 46 5 46 8
33	0	0 318 1321		0.948 0464		0.335 5660		2.980 0400		0	27	
	10	1781	460	0310	154	6199	539	.979 5610	4 790	50		4 61 6 62 0 62 4
	20	2240	459	0155	155	6739	540	.979 0822	4 788	40		5 77 0 77 5 78 0
	30	2700	460	0001	154	7278	539	.978 6035	4 787	30		6 92 4 93 0 93 6
	40	3159	459	0.947 9847	154	7817	539	.978 1250	4 785	20		7 107 8 108 5 109 2
	50	3619	460	9692	154	8357	540	.977 6466	4 784	10		8 123 2 124 0 124 8
34	0	0.318 4079		0.947 9638		0.335 8896		2 977 1683		0	26	
	10	4538	459	9384	154	9436	540	.976 6902	4 781	50		Tangent
	20	4998	460	9229	155	9975	539	.976 2122	4 780	40		539 540
	30	5457	459	9075	154	0 336 0515	540	.975 7344	4 778	30		1 53 9 54 0
	40	5917	460	8920	155	1055	540	.975 2566	4 775	20		2 107 8 108 0
	50	6376	459	8766	154	1594	539	.974 7791	4 775	10		3 161 7 162 0
35	0	0.318 6836		0.947 8612		0.336 2134		2.974 3016		0	25	
	10	7296	460	8457	155	2673	539	.973 8243	4 773	50		4 215 6 216 0
	20	7755	459	8302	155	3213	540	.973 3472	4 771	40		5 269 5 270 0
	30	8215	460	8148	154	3753	540	.972 8701	4 771	30		6 323 4 324 0
	40	8674	459	7993	155	4292	539	.972 3932	4 769	20		7 377 3 378 0
	50	9134	460	7839	154	4832	540	.971 9165	4 767	10		8 431 2 432 0
36	0	0.318 9693		0.947 7684		0.336 5372		2.971 4399		0	24	
	10	0 319 0053	460	7529	155	5912	540	.970 9634	4 765	50		Cotangent
	20	0512	459	7375	154	6451	539	.970 4871	4 763	40		4820 4800
	30	0972	460	7220	155	6991	540	.970 0109	4 762	30		1 482 0 480 0
	40	1431	459	7065	154	7531	540	.969 5348	4 761	20		2 964 0 960 0
	50	1890	460	6911	155	8071	539	.969 0589	4 759	10		3 1446 0 1440 0
37	0	0.319 2350		0.947 6756		0.336 8610		2.968 5831		0	23	
	10	2809	459	6601	155	9150	540	.968 1074	4 757	50		4 1928 0 1920 0
	20	3269	460	6446	155	9690	540	.967 6319	4 755	40		5 2410 0 2400 0
	30	3728	459	6291	154	0.337 0230	540	.967 1565	4 754	30		6 2892 0 2880 0
	40	4188	460	6137	155	0770	540	.966 6813	4 752	20		7 3374 0 3360 0
	50	4647	459	5982	155	1310	540	.966 2062	4 751	10		8 3856 0 3840 0
38	0	0.319 5106		0.947 5827		0.337 1850		2.965 7312		0	22	
	10	5566	460	5672	155	2390	540	.965 2564	4 748	50		9 4338 0 4320 0
	20	6025	459	5517	155	2930	540	.964 7817	4 747	40		4790 4770
	30	6485	460	5362	155	3470	540	.964 3071	4 746	30		1 479 0 477 0
	40	6944	459	5207	155	4010	540	.963 8327	4 744	20		2 958 0 954 0
	50	7403	460	5052	155	4550	540	.963 3584	4 743	10		3 1437 0 1431 0
39	0	0.319 7863		0.947 4897		0.337 5090		2 962 8842		0	21	
	10	8322	459	4742	155	5630	540	.962 4102	4 740	50		4 1916 0 1908 0
	20	8781	460	4587	155	6170	540	.961 9363	4 739	40		5 2395 0 2385 0
	30	9241	459	4432	155	6710	540	.961 4626	4 737	30		6 2874 0 2862 0
	40	9700	460	4277	155	7250	540	.960 9890	4 736	20		7 3355 0 3349 0
	50	0 320 0159	459	4122	155	7790	540	.960 5155	4 735	10		8 3832 0 3816 0
40	0	0.320 0619		0.947 3966		0.337 8330		2.960 0422		0	20	
												9 4311 0 4293 0
												4750 4730
												1 475 0 473 0
												2 950 0 946 0
												3 1425 0 1419 0
												4 1900 0 1892 0
												5 2375 0 2365 0
												6 2850 0 2838 0
												7 3325 0 3311 0
												8 3800 0 3784 0
												9 4275 0 4257 0
												Proportional Parts

71° 20'

18° 40'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
40	0	0.320 0619		0.947 3966		0.337 8330		2.960 0422		0	20	
	10	1078	459	3811	155	8870	540	.959 5690	4 732	50		
	20	1537	459	3656	155	9411	541	.959 0959	4 731	40		
	30	1997	460	3501	155	9951	540	.958 6230	4 729	30		
	40	2456	459	3346	155	0.338 0491	540	.958 1502	4 728	20		
	50	2915	459	3190	156	1031	540	.957 6775	4 727	10		
			459		155				4 725			
41	0	0.320 3374		0.947 3035		0.338 1571		2.957 2050		0	19	
	10	3834	460	2880	155	2112	541	.956 7326	4 724	50		
	20	4293	459	2724	156	2652	540	.956 2604	4 722	40		
	30	4752	459	2569	155	3192	540	.955 7883	4 721	30		
	40	5211	459	2414	155	3733	541	.955 3163	4 720	20		
	50	5671	460	2258	156	4273	540	.954 8444	4 719	10		
			459		155				4 717			
42	0	0.320 6130		0.947 2103		0.338 4813		2.954 3727		0	18	
	10	6589	459	1947	156	5354	541	.953 9012	4 715	50		
	20	7048	459	1792	155	5894	540	.953 4297	4 715	40		
	30	7508	460	1636	156	6434	540	.952 9584	4 713	30		
	40	7967	459	1481	155	6975	541	.952 4872	4 712	20		
	50	8426	459	1325	156	7515	540	.952 0162	4 710	10		
			459		155				4 709			
43	0	0.320 8885		0.947 1170		0.338 8066		2.951 5453		0	17	
	10	9344	459	1014	156	8596	540	.951 0745	4 708	50		
	20	9803	459	0859	155	9137	541	.950 6039	4 706	40		
	30	0.321 0263	460	0703	156	9677	540	.950 1334	4 705	30		
	40	0722	459	0547	156	0.339 0218	541	.949 6631	4 703	20		
	50	1181	459	0392	155	0758	540	.949 1928	4 703	10		
			459		156				4 701			
44	0	0.321 1640		0.947 0236		0.339 1299		2.948 7227		0	16	
	10	2099	459	0080	156	1839	540	.948 2528	4 699	50		
	20	2558	459	0.946 9924	156	2380	541	.947 7830	4 698	40		
	30	3017	459	9769	155	2921	541	.947 3133	4 697	30		
	40	3476	459	9613	156	3461	540	.946 8437	4 696	20		
	50	3936	460	9457	156	4002	541	.946 3743	4 694	10		
			459		156				4 693			
45	0	0.321 4395		0.946 9301		0.339 4543		2.945 9050		0	15	
	10	4854	459	9145	156	5083	540	.945 4359	4 691	50		
	20	5313	459	8990	155	5624	541	.944 9668	4 691	40		
	30	5772	459	8834	156	6165	541	.944 4979	4 689	30		
	40	6231	459	8678	156	6705	540	.944 0292	4 687	20		
	50	6690	459	8522	156	7246	541	.943 5606	4 686	10		
			459		156				4 685			
46	0	0.321 7149		0.946 8366		0.339 7787		2.943 0921		0	14	
	10	7608	459	8210	156	8328	541	.942 6237	4 684	50		
	20	8067	459	8054	156	8869	541	.942 1555	4 682	40		
	30	8526	459	7898	156	9409	540	.941 6874	4 681	30		
	40	8985	459	7742	156	9950	541	.941 2195	4 679	20		
	50	9444	459	7586	156	0.340 0491	541	.940 7517	4 678	10		
			459		156				4 677			
47	0	0.321 9903		0.946 7430		0.340 1032		2.940 2840		0	13	
	10	0.322 0362	459	7274	156	1573	541	.939 8164	4 676	50		
	20	0821	459	7117	157	2114	541	.939 3490	4 674	40		
	30	1280	459	6961	156	2655	541	.938 8817	4 673	30		
	40	1739	459	6805	156	3196	541	.938 4146	4 671	20		
	50	2198	459	6649	156	3737	541	.937 9476	4 670	10		
			459		156				4 669			
48	0	0.322 2657		0.946 6493		0.340 4278		2.937 4807		0	12	
	10	3116	459	6336	157	4819	541	.937 0139	4 668	50		
	20	3575	459	6180	156	5360	541	.936 5473	4 666	40		
	30	4034	459	6024	157	5901	541	.936 0808	4 665	30		
	40	4493	459	5867	156	6442	541	.935 6145	4 663	20		
	50	4952	459	5711	156	6983	541	.935 1483	4 662	10		
			459		156				4 661			
49	0	0.322 5411		0.946 5555		0.340 7524		2.934 6822		0	11	
	10	5869	458	5398	157	8065	541	.934 2162	4 660	50		
	20	6328	459	5242	156	8606	541	.933 7504	4 658	40		
	30	6787	459	5086	157	9147	542	.933 2847	4 657	30		
	40	7246	459	4929	157	9689	541	.932 8192	4 655	20		
	50	7705	459	4773	156	0.341 0230	541	.932 3537	4 655	10		
			459		157				4 652			
50	0	0.322 8164		0.946 4616		0.341 0771		2.931 8885		0	10	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

71° 10'

18° 50'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
50	0	0.322 8164		0.946 4616		0.341 0771		2.931 8885		0	10	
	10	8623	459	4460	156	1312	541	.931 4233	4 652	50		
	20	9081	458	4303	157	1853	541	.930 9583	4 650	40		
	30	9540	459	4147	156	2395	542	.930 4934	4 649	30		
	40	9999	459	3990	157	2936	541	.930 0286	4 648	20		
	50	0 323 0458	459	3833	157	3477	541	.929 5640	4 646	10		
			459		156		542		4 645			
51	0	0.323 0917		0.946 3677		0.341 4019		2.929 0995		0	9	
	10	1376	459	3520	157	4560	541	.928 6351	4 644	50		
	20	1834	458	3363	157	5101	541	.928 1709	4 642	40		
	30	2293	459	3207	156	5643	542	.927 7068	4 641	30		
	40	2752	459	3050	157	6184	541	.927 2428	4 640	20		
	50	3211	459	2893	157	6725	541	.926 7790	4 638	10		
			459		157		542		4 638			
52	0	0.323 3670		0.946 2736		0.341 7267		2.926 3152		0	8	
	10	4128	458	2580	156	7808	541	.925 8517	4 635	50		
	20	4587	459	2423	157	8350	542	.925 3882	4 635	40		
	30	5046	459	2266	157	8891	541	.924 9249	4 633	30		
	40	5505	459	2109	157	9433	542	.924 4617	4 632	20		
	50	5963	458	1952	157	9974	541	.923 9987	4 630	10		
			459		157		542		4 629			
53	0	0 323 6422		0.946 1795		0.342 0516		2.923 5358		0	7	
	10	6881	459	1639	156	1057	541	.923 0730	4 628	50		
	20	7339	458	1482	157	1599	542	.922 6103	4 627	40		
	30	7798	459	1325	157	2140	541	.922 1478	4 625	30		
	40	8257	459	1168	157	2682	542	.921 6854	4 624	20		
	50	8716	459	1011	157	3224	542	.921 2231	4 623	10		
			458		157		541		4 621			
54	0	0.323 9174		0.946 0854		0.342 3765		2 920 7610		0	6	
	10	9633	459	0697	157	4307	542	.920 2990	4 620	50		
	20	0 324 0092	459	0539	158	4849	542	.919 8371	4 619	40		
	30	0550	458	0382	157	5390	541	.919 3754	4 617	30		
	40	1009	459	0225	157	5932	542	.918 9138	4 616	20		
	50	1467	458	0068	157	6474	542	.918 4523	4 615	10		
			459		157		541		4 614			
55	0	0 324 1926		0.945 9911		0.342 7015		2.917 9909		0	5	
	10	2385	459	9754	157	7557	542	.917 5297	4 612	50		
	20	2843	458	9597	157	8099	542	.917 0686	4 611	40		
	30	3302	459	9439	158	8641	542	.916 6077	4 609	30		
	40	3761	458	9282	157	9183	542	.916 1468	4 609	20		
	50	4219	458	9125	157	9724	541	.915 6861	4 607	10		
			459		157		542		4 605			
56	0	0 324 4678		0.945 8968		0.343 0266		2.915 2256		0	4	
	10	5136	458	8810	158	0808	542	.914 7651	4 605	50		
	20	5595	459	8653	157	1350	542	.914 3048	4 603	40		
	30	6053	458	8495	158	1892	542	.913 8447	4 601	30		
	40	6512	459	8338	157	2434	542	.913 3846	4 601	20		
	50	6971	459	8181	158	2976	542	.912 9247	4 599	10		
			458		158		542		4 598			
57	0	0 324 7429		0.945 8023		0.343 3518		2.912 4649		0	3	
	10	7888	459	7866	157	4060	542	.912 0052	4 597	50		
	20	8346	458	7708	158	4602	542	.911 5457	4 595	40		
	30	8805	459	7551	157	5144	542	.911 0863	4 594	30		
	40	9263	458	7393	158	5686	542	.910 6271	4 592	20		
	50	9722	459	7236	157	6228	542	.910 1679	4 592	10		
			458		158		542		4 590			
58	0	0 325 0180		0.945 7078		0.343 6770		2.909 7089		0	2	
	10	0639	459	6921	157	7312	542	.909 2500	4 589	50		
	20	1097	458	6763	158	7854	542	.908 7913	4 587	40		
	30	1556	459	6605	157	8396	542	.908 3327	4 586	30		
	40	2014	458	6448	158	8938	542	.907 8742	4 585	20		
	50	2473	459	6290	158	9481	543	.907 4158	4 584	10		
			458		158		542		4 582			
59	0	0.325 2931		0.945 6132		0.344 0023		2.906 9576		0	1	
	10	3389	458	5975	157	0565	542	.906 4995	4 581	50		
	20	3848	459	5817	158	1107	542	.906 0415	4 580	40		
	30	4306	458	5659	158	1649	542	.905 5836	4 579	30		
	40	4765	459	5501	157	2192	543	.905 1259	4 577	20		
	50	5223	458	5344	157	2734	542	.904 6683	4 576	10		
			459		158		542		4 574			
60	0	0 325 5682		0.945 5186		0.344 3276		2.904 2109		0	0	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

71° 0'

19° 0'

"	'	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
0	0	0.325 5682		0.945 5186		0.344 3276		2 904 2109		0	60	
	10	6140	458	5028	158	3818	542	.903 7535	4 574	50		
	20	6598	458	4870	158	4361	543	.903 2963	4 572	40		Sine
	30	7057	459	4712	158	4903	542	.902 8393	4 570	30		458 459
	40	7515	458	4554	158	5445	543	.902 3823	4 568	20		1 45 8 45 9
	50	7973	459	4396	158	5988	542	.901 9255	4 567	10		2 01 6 91 8
1	0	0.325 8432		0.945 4238		0.344 6530		2 901 4688		0	59	
	10	8890	458	4080	158	7073	543	.901 0123	4 565	50		3 137 1 137 7
	20	9349	459	3922	158	7615	542	.900 5558	4 563	40		4 183 2 183 6
	30	9807	458	3764	158	8158	543	.900 0995	4 561	30		5 229 0 229 5
	40	0.326 0265	458	3606	158	8700	542	.899 6434	4 560	20		6 274 8 275 4
	50	0723	459	3448	158	9242	543	.899 1873	4 559	10		7 320 6 321 3
2	0	0.326 1182		0.945 3290		0.344 9785		2.898 7314		0	58	
	10	1640	458	3132	158	0.345 0327	542	.898 2756	4 558	50		Cosine
	20	2098	459	2974	158	0870	543	.897 8200	4 556	40		158 159 160
	30	2557	458	2816	158	1413	543	.897 3644	4 556	30		1 15 8 15 9 16 0
	40	3015	458	2657	159	1955	542	.896 9090	4 554	20		2 31 6 31 8 32 0
	50	3473	459	2499	158	2498	542	.896 4537	4 553	10		3 47 1 47 7 48 0
3	0	0.326 3932		0.945 2341		0.345 3040		2 895 9986		0	57	
	10	4390	458	2183	158	3583	543	.895 5436	4 550	50		4 63 2 63 6 64 0
	20	4848	458	2025	159	4126	542	.895 0887	4 549	40		5 79 0 79 5 80 0
	30	5306	458	1866	158	4668	543	.894 6339	4 548	30		6 94 8 95 4 96 0
	40	5764	459	1708	158	5211	543	.894 1793	4 546	20		7 110 6 111 3 112 0
	50	6223	458	1550	159	5754	542	.893 7248	4 545	10		8 126 4 127 2 128 0
4	0	0.326 6681		0.945 1391		0.345 6296		2.893 2704		0	56	
	10	7139	458	1233	158	6839	543	.892 8161	4 543	50		Tangent
	20	7597	459	1074	159	7382	543	.892 3620	4 541	40		542 543 544
	30	8056	458	0916	158	7925	543	.891 9080	4 540	30		1 54 2 54 3 54 4
	40	8514	458	0758	159	8467	542	.891 4541	4 539	20		2 108 4 108 6 108 8
	50	8972	458	0599	158	9010	543	.891 0004	4 537	10		3 162 6 162 9 163 2
5	0	0.326 9430		0.945 0441		0.345 9553		2 890 5467		0	55	
	10	9888	458	0282	159	0.346 0096	543	.890 0933	4 534	50		4 216 8 217 2 217 6
	20	0.327 0346	459	0124	159	0639	543	.889 6399	4 534	40		5 325 2 325 8 326 1
	30	0805	458	0.944 9965	159	1182	543	.889 1867	4 532	30		6 379 4 380 1 380 8
	40	1263	458	9806	158	1725	543	.888 7335	4 532	20		7 433 6 434 1 435 2
	50	1721	458	9648	159	2268	542	.888 2806	4 529	10		8 487 8 488 7 489 6
6	0	0.327 2179		0.944 9489		0.346 2810		2 887 8277		0	54	
	10	2637	458	9330	159	3353	543	.887 3750	4 527	50		Cotangent
	20	3095	458	9172	159	3896	543	.886 9224	4 526	40		4570 4550
	30	3553	458	9013	159	4439	543	.886 4699	4 525	30		1 457 0 455 0
	40	4011	459	8854	158	4982	543	.886 0175	4 524	20		2 914 0 910 0
	50	4470	458	8696	159	5525	543	.885 5653	4 522	10		3 1371 0 1365 0
7	0	0.327 4928		0.944 8537		0.346 6068		2 885 1132		0	53	
	10	5386	458	8378	159	6612	544	.884 6612	4 520	50		4 1828 0 1820 0
	20	5844	458	8219	159	7155	543	.884 2094	4 518	40		5 2285 0 2275 0
	30	6302	458	8060	158	7698	543	.883 7577	4 517	30		6 2712 0 2730 0
	40	6760	458	7902	159	8241	543	.883 3061	4 516	20		7 3199 0 3185 0
	50	7218	458	7743	159	8784	543	.882 8546	4 515	10		8 3656 0 3640 0
8	0	0.327 7676		0.944 7684		0.346 9327		2 882 4033		0	52	
	10	8134	458	7425	159	9870	543	.881 9521	4 512	50		9 4113 0 4095 0
	20	8592	458	7266	159	0.347 0414	544	.881 5010	4 511	40		4530 4510
	30	9050	458	7107	159	0957	543	.881 0500	4 510	30		1 453 0 451 0
	40	9508	458	6948	159	1500	543	.880 5992	4 508	20		2 906 0 902 0
	50	9966	458	6789	159	2043	543	.880 1485	4 507	10		3 1379 0 1353 0
9	0	0.328 0424		0.944 6630		0.347 2586		2 879 6979		0	51	
	10	0882	458	6471	159	3130	544	.879 2474	4 505	50		4 1812 0 1804 0
	20	1340	458	6312	159	3673	543	.878 7971	4 503	40		5 2265 0 2255 0
	30	1798	458	6153	159	4216	543	.878 3469	4 502	30		6 2718 0 2706 0
	40	2256	458	5994	159	4760	544	.877 8969	4 500	20		7 3171 0 3157 0
	50	2714	458	5835	159	5303	543	.877 4469	4 500	10		8 3682 0 3668 0
10		0.328 3172		0.944 5675	160	0.347 5846	543	2.876 9970	4 499	0	50	
												4500
												1 150 0
												2 900 0
												3 1530 0
												4 1800 0
												5 2250 0
												6 2700 0
												7 3150 0
												8 3600 0
												9 4050 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

70° 50'

19° 10'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
10	0	0.328 3172		0.944 5675		0.347 5846		2.876 9970		0	50	
	10	3630	458	5516	159	6390	544	.876 5473	4 497	50		Sine
	20	4088	458	5357	159	6933	543	.876 0977	4 496	40		457 458
	30	4546	458	5198	159	7477	544	.875 6483	4 494	30		1 15 7 15 8
	40	5003	457	5039	159	8020	543	.875 1990	4 493	20		2 91 4 91 6
	50	5461	458	4879	160	8564	544	.874 7498	4 492	10		3 137 1 137 4
			458		159		543		4 491			4 182 8 183 2
11	0	0.328 5919		0.944 4720		0.347 9107		2.874 3007		0	49	
	10	6377	458	4561	159	9651	544	.873 8517	4 490	50		5 228 5 229 0
	20	6835	458	4401	160	10194	543	.873 4029	4 488	40		6 271 2 274 8
	30	7293	458	4242	159	10738	544	.872 9542	4 487	30		7 319 9 320 6
	40	7751	458	4083	160	11281	543	.872 5056	4 486	20		8 365 6 366 4
	50	8209	457	3923	159	11825	544	.872 0572	4 484	10		9 411 3 412 2
			457		159		543		4 484			
12	0	0.328 8666		0.944 3764		0.348 2368		2.871 6088		0	48	
	10	9124	458	3604	160	2912	544	.871 1606	4 482	50		Cosine
	20	9582	458	3445	159	3456	544	.870 7126	4 480	40		159 160 161
	30	0.329 0040	458	3285	160	3999	543	.870 2646	4 480	30		1 15 9 16 0 32 2
	40	0498	458	3126	159	4543	544	.869 8168	4 478	20		2 31 8 32 0 48 1
	50	0956	458	2966	160	5087	544	.869 3691	4 477	10		3 47 7 48 0 64 1
			457		159		543		4 476			4 63 6 64 0 80 5
13	0	0.329 1413		0.944 2807		0.348 5630		2.868 9215		0	47	
	10	1871	458	2647	160	6174	544	.868 4740	4 475	50		5 79 5 80 0 96 6
	20	2329	458	2487	160	6718	544	.868 0267	4 473	40		6 95 1 96 0 112 7
	30	2787	458	2328	159	7262	544	.867 5795	4 472	30		7 111 3 112 0 128 8
	40	3245	458	2168	160	7805	543	.867 1324	4 471	20		8 127 2 128 0 144 9
	50	3702	457	2009	159	8349	544	.866 6855	4 469	10		9 143 1 144 0 160 0
			458		160		544		4 469			
14	0	0.329 4160		0.944 1849		0.348 8893		2.866 2386		0	46	
	10	4618	458	1689	160	9437	544	.865 7919	4 467	50		Tangent
	20	5076	458	1529	160	9981	544	.865 3453	4 466	40		543 544 545
	30	5533	457	1370	159	0.349 0525	544	.864 8989	4 464	30		1 54 3 54 4 54 5
	40	5991	458	1210	160	1068	543	.864 4525	4 464	20		2 108 6 108 8 109 0
	50	6449	457	1050	160	1612	544	.864 0063	4 462	10		3 162 9 163 2 163 5
			457		160		544		4 461			4 217 2 217 6 218 0
15	0	0.329 6906		0.944 0890		0.349 2156		2.863 5602		0	45	
	10	7364	458	0730	160	2700	544	.863 1143	4 459	50		5 271 5 272 0 272 5
	20	7822	458	0570	160	3244	544	.862 6684	4 459	40		6 325 8 326 4 327 0
	30	8280	458	0411	159	3788	544	.862 2227	4 457	30		7 380 1 380 8 381 5
	40	8737	457	0251	160	4332	544	.861 7771	4 456	20		8 434 4 435 2 436 0
	50	9195	458	0091	160	4876	544	.861 3316	4 455	10		9 488 7 489 6 490 5
			458		160		544		4 453			
16	0	0.329 9653		0.943 9931		0.349 5420		2.860 8863		0	44	
	10	0.330 0110	457	9771	160	5964	544	.860 4411	4 452	50		Cotangent
	20	0568	458	9611	160	6508	544	.859 9960	4 451	40		4500 4480
	30	1026	458	9451	160	7053	545	.859 5510	4 450	30		1 450 0 448 0
	40	1483	457	9291	160	7597	544	.859 1061	4 449	20		2 900 0 896 0
	50	1941	457	9131	160	8141	544	.858 6614	4 447	10		3 1350 0 1344 0
			457		160		544		4 446			4 1800 0 1792 0
17	0	0.330 2398		0.943 8971		0.349 8685		2.858 2168		0	43	
	10	2856	458	8810	161	9229	544	.857 7723	4 445	50		5 2250 0 2240 0
	20	3314	458	8650	160	9773	544	.857 3280	4 443	40		6 2703 0 2688 0
	30	3771	457	8490	160	0.350 0317	544	.856 8837	4 443	30		7 3150 0 3136 0
	40	4229	458	8330	160	0862	545	.856 4396	4 441	20		8 3600 0 3584 0
	50	4686	457	8170	160	1406	544	.855 9956	4 440	10		9 4050 0 4032 0
			458		160		544		4 439			
18	0	0.330 5144		0.943 8010		0.350 1950		2.855 5517		0	42	
	10	5601	457	7849	161	2494	544	.855 1080	4 437	50		4460 4440
	20	6059	458	7689	160	3039	545	.854 6644	4 436	40		1 446 0 444 0
	30	6517	458	7529	160	3583	544	.854 2209	4 435	30		2 892 0 888 0
	40	6974	457	7368	161	4127	544	.853 7775	4 434	20		3 1338 0 1332 0
	50	7432	457	7208	160	4672	545	.853 3342	4 433	10		4 1784 0 1776 0
			457		160		544		4 431			5 2230 0 2220 0
19	0	0.330 7889		0.943 7048		0.350 5216		2.852 8911		0	41	
	10	8347	458	6887	161	5761	545	.852 4481	4 430	50		6 2676 0 2664 0
	20	8804	457	6727	160	6305	544	.852 0052	4 429	40		7 3122 0 3108 0
	30	9262	458	6566	161	6849	544	.851 5625	4 427	30		8 3568 0 3552 0
	40	9719	457	6406	160	7394	545	.851 1198	4 427	20		9 4014 0 3996 0
	50	0.331 0177	458	6246	160	7938	544	.850 6773	4 425	10		4420
			457		161		545		4 424			1 442 0
20	0	0.331 0634		0.943 6085		0.350 8483		2.850 2349		0	40	
												2 884 0
												3 1326 0
												4 1768 0
												5 2210 0
												6 2652 0
												7 3094 0
												8 3536 0
												9 3978 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff.	"	'	Proportional Parts

70° 40'

19° 20'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
20	0	0.331 0634		0.943 6085		0.350 8483		2.850 2349		0	40	
	10	1092	458	5925	160	9027	544	.849 7926	4 423	50		Sine
	20	1549	457	5764	161	9572	545	.849 3505	4 421	40		457 458
	30	2007	458	5603	161	0.351 0116	544	.848 9084	4 421	30		1 45 7 45 8
	40	2464	457	5443	160	0661	545	.848 4665	4 419	20		2 91 4 91 6
	50	2921	457	5282	161	1205	544	.848 0247	4 418	10		3 137 1 137 4
			458		160		545		4 416			4 182 8 183 2
21	0	0.331 3379		0.943 5122		0.351 1750		2.847 5831		0	39	
	10	3836	457	4961	161	2295	545	.847 1415	4 416	50		5 228 5 229 0
	20	4294	458	4800	161	2839	544	.846 7001	4 414	40		6 274 2 271 8
	30	4751	457	4640	160	3384	545	.846 2588	4 413	30		7 319 9 320 6
	40	5209	458	4479	161	3929	545	.845 8176	4 412	20		8 365 6 366 4
	50	5666	457	4318	161	4473	544	.845 3766	4 410	10		9 411 3 412 2
			457		161		545		4 410			
22	0	0.331 6123		0.943 4157		0.351 5018		2.844 9356		0	38	
	10	6581	458	3997	160	5563	545	.844 4948	4 408	50		Cosine
	20	7038	457	3836	161	6107	544	.844 0541	4 407	40		160 161 162
	30	7495	457	3675	161	6652	545	.843 6136	4 405	30		1 16 0 16 1 16 2
	40	7953	458	3514	161	7197	545	.843 1731	4 405	20		2 32 0 32 2 32 4
	50	8410	457	3353	161	7742	545	.842 7328	4 403	10		3 48 0 48 3 48 6
			457		161		545		4 402			4 64 0 64 4 64 8
23	0	0.331 8867		0.943 3192		0.351 8287		2.842 2926		0	37	
	10	9325	458	3031	161	8831	544	.841 8525	4 401	50		5 80 0 80 5 81 0
	20	9782	457	2871	160	9376	545	.841 4126	4 399	40		6 96 0 96 6 97 2
	30	0.332 0239	457	2710	161	9921	545	.840 9727	4 399	30		7 112 0 112 7 113 4
	40	0697	458	2549	161	0.352 0466	545	.840 5330	4 397	20		8 128 0 128 8 129 6
	50	1154	457	2388	161	1011	545	.840 0934	4 396	10		9 144 0 144 9 145 8
			457		161		545		4 395			
24	0	0.332 1611		0.943 2227		0.352 1556		2.839 6539		0	36	
	10	2069	458	2066	162	2101	545	.839 2146	4 393	50		Tangent
	20	2526	457	1904	161	2646	545	.838 7753	4 393	40		544 545 546
	30	2983	457	1743	161	3191	545	.838 3362	4 391	30		1 54 4 54 5 54 6
	40	3440	457	1582	161	3736	545	.837 8972	4 390	20		2 108 8 109 0 109 2
	50	3898	458	1421	161	4281	545	.837 4583	4 389	10		3 163 2 163 5 163 8
			457		161		545		4 387			4 217 6 218 0 218 4
25	0	0.332 4355		0.943 1260		0.352 4826		2.837 0196		0	35	
	10	4812	457	1099	161	5371	545	.836 5810	4 386	50		5 272 0 272 5 273 0
	20	5269	457	0938	161	5916	545	.836 1424	4 386	40		6 326 4 327 0 327 6
	30	5727	458	0776	162	6461	545	.835 7041	4 383	30		7 380 8 381 5 382 2
	40	6184	457	0615	161	7006	545	.835 2658	4 383	20		8 435 2 436 0 436 8
	50	6641	457	0454	161	7551	545	.834 8276	4 382	10		9 489 6 490 5 491 4
			457		161		545		4 380			
26	0	0.332 7098		0.943 0293		0.352 8096		2.834 3896		0	34	
	10	7555	457	0131	162	8642	546	.833 9517	4 379	50		Cotangent
	20	8013	458	0.942 9970	161	9187	545	.833 5139	4 376	40		4420 4400
	30	8470	457	9809	161	9732	545	.833 0762	4 377	30		1 412 0 440 0
	40	8927	457	9647	162	0.353 0277	545	.832 6387	4 375	20		2 884 0 880 0
	50	9384	457	9486	161	0823	546	.832 2013	4 374	10		3 1326 0 1320 0
			457		162		545		4 373			4 1768 0 1760 0
27	0	0.332 9841		0.942 9324		0.353 1368		2.831 7640		0	33	
	10	0.333 0298	457	9163	161	1913	545	.831 3268	4 372	50		5 2210 0 2200 0
	20	0756	458	9001	162	2458	545	.830 8897	4 371	40		6 2652 0 2640 0
	30	1213	457	8840	161	3004	546	.830 4527	4 370	30		7 3094 0 3080 0
	40	1670	457	8678	162	3549	545	.830 0159	4 367	20		8 3536 0 3520 0
	50	2127	457	8517	161	4094	545	.829 5792	4 366	10		9 3978 0 3960 0
			457		162		546		4 366			
28	0	0.333 2584		0.942 8355		0.353 4640		2.829 1426		0	32	
	10	3041	457	8194	161	5185	545	.828 7062	4 364	50		4380 4360
	20	3498	457	8032	162	5731	546	.828 2698	4 364	40		1 438 0 436 0
	30	3955	457	7871	161	6276	545	.827 8336	4 362	30		2 876 0 872 0
	40	4412	457	7709	162	6821	545	.827 3975	4 361	20		3 1311 0 1308 0
	50	4869	457	7547	161	7367	546	.826 9615	4 360	10		4 1752 0 1744 0
			457		161		545		4 359			5 2190 0 2180 0
29	0	0.333 6326		0.942 7386		0.353 7912		2.826 5256		0	31	
	10	5783	457	7224	162	8458	546	.826 0899	4 357	50		6 2628 0 2616 0
	20	6241	458	7062	162	9003	545	.825 6542	4 357	40		7 3066 0 3052 0
	30	6698	457	6900	162	9549	546	.825 2187	4 355	30		8 3504 0 3488 0
	40	7155	457	6739	161	0.354 0095	546	.824 7833	4 354	20		9 3942 0 3924 0
	50	7612	457	6577	162	0640	545	.824 3480	4 353	10		4350
			457		162		546		4 351			1 425 0
30	0	0.333 8069		0.942 6415		0.354 1186		2.823 9129		0	30	
												2 870 0
												3 1305 0
												4 1740 0
												5 2175 0
												6 2619 0
												7 3045 0
												8 3480 0
												9 3915 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff			Proportional Parts

70° 30'

19° 30'

	'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
30	0	0.333 8069			0.942 6415		0.354 1186		2.823 9129		0	30	
	10	8526	457		6253	162	1731	545	.823 4778	4 351	50		Sine
	20	8983	457		6091	162	2277	546	.823 0429	4 349	40		456 457
	30	9440	457		5929	162	2823	546	.822 6081	4 348	30		1 45 6 45 7
	40	9897	457		5767	162	3368	545	.822 1735	4 346	20		2 91 2 91 4
	50	0.334 0354	457		5605	162	3914	546	.821 7389	4 346	10		3 136 8 137 1
			456			161		546		4 344			4 182 4 182 8
31	0	0.334 0810			0.942 5444		0.354 4460		2.821 3045		0	29	
	10	1267	457		5282	162	5005	545	.820 8701	4 344	50		5 228 0 228 5
	20	1724	457		5120	162	5551	546	.820 4359	4 342	40		6 273 6 274 2
	30	2181	457		4958	162	6097	546	.820 0018	4 341	30		7 319 2 319 9
	40	2638	457		4795	163	6643	546	.819 5679	4 339	20		8 364 8 365 6
	50	3095	457		4633	162	7189	546	.819 1340	4 339	10		9 410 4 411 3
			456			162		545		4 337			
32	0	0.334 3552			0.942 4471		0.354 7734		2.818 7003		0	28	
	10	4009	457		4309	162	8280	546	.818 2667	4 336	50		Cosine
	20	4466	457		4147	162	8826	546	.817 8332	4 335	40		161 162 163
	30	4923	457		3985	162	9372	546	.817 3998	4 334	30		1 16 1 16 2 16 3
	40	5380	457		3823	162	9918	546	.816 9666	4 332	20		2 32 2 32 4 32 6
	50	5837	457		3661	162	0 355 0464	546	.816 5334	4 332	10		3 48 2 48 6 48 9
			456			163		546		4 330			4 64 4 64 8 65 2
33	0	0.334 6293			0.942 3498		0.355 1010		2.816 1004		0	27	
	10	6750	457		3336	162	1556	546	.815 6675	4 329	50		5 80 5 81 0 81 5
	20	7207	457		3174	162	2102	546	.815 2347	4 328	40		6 96 6 97 2 97 8
	30	7664	457		3012	162	2648	546	.814 8021	4 326	30		7 112 7 113 4 11 1
	40	8121	457		2849	163	3194	546	.814 3695	4 326	20		8 128 8 129 6 130 4
	50	8578	457		2687	162	3740	546	.813 9371	4 324	10		9 144 9 145 8 146 7
			456			162		546		4 323			
34	0	0.334 9034			0.942 2525		0.355 4286		2.813 5048		0	26	
	10	9491	457		2362	163	4832	546	.813 0726	4 322	50		Tangent
	20	9948	457		2200	162	5378	546	.812 6405	4 321	40		545 546 547
	30	0.335 0405	457		2037	163	5924	546	.812 2086	4 319	30		1 54 5 54 6 54 7
	40	0862	456		1875	162	6470	546	.811 7767	4 319	20		2 109 0 109 2 109 4
	50	1318	457		1712	163	7016	546	.811 3450	4 317	10		3 163 5 163 8 164 1
			456			162		546		4 316			4 218 0 218 4 218 8
35	0	0.335 1775			0.942 1550		0.355 7562		2.810 9134		0	25	
	10	2232	457		1387	163	8109	547	.810 4819	4 315	50		5 272 5 273 0 273 5
	20	2689	457		1225	162	8655	546	.810 0506	4 313	40		6 327 0 327 6 328 2
	30	3145	456		1062	163	9201	546	.809 6193	4 313	30		7 381 5 382 2 382 9
	40	3602	457		0900	162	9747	546	.809 1882	4 311	20		8 436 0 436 8 437 6
	50	4059	457		0737	163	0.356 0294	547	.808 7572	4 310	10		9 490 5 491 4 492 3
			456			162		546		4 309			
36	0	0.335 4516			0.942 0675		0.356 0840		2.808 3263		0	24	
	10	4972	456		0412	163	1386	546	.807 8955	4 308	50		Cotangent
	20	5429	457		0249	162	1932	546	.807 4648	4 307	40		4350 4330
	30	5886	457		0087	162	2479	547	.807 0342	4 306	30		1 435 0 433 0
	40	6343	456		0.941 9924	163	3025	546	.806 6038	4 304	20		2 870 0 866 0
	50	6799	457		9761	163	3571	547	.806 1735	4 303	10		3 1105 0 1299 0
			456			163		546		4 302			4 1740 0 1732 0
37	0	0.335 7256			0 941 9698		0.356 4118		2.805 7433		0	23	
	10	7713	457		9436	162	4664	546	.805 3133	4 300	50		5 2175 0 2165 0
	20	8169	457		9273	163	5211	547	.804 8833	4 298	40		6 2610 0 2598 0
	30	8626	457		9110	163	5757	546	.804 4535	4 298	30		7 3045 0 3031 0
	40	9083	456		8947	163	6304	546	.804 0237	4 296	20		8 3480 0 3461 0
	50	9539	457		8784	163	6850	547	.803 5941	4 295	10		9 3915 0 3897 0
			456			163		547					
38	0	0.335 9996			0.941 8621		0.356 7397		2.803 1646		0	22	
	10	0.336 0452	456		8458	163	7943	546	.802 7352	4 294	50		4310 4300
	20	0909	457		8296	162	8490	547	.802 3060	4 292	40		1 431 0 430 0
	30	1366	456		8133	163	9036	546	.801 8768	4 292	30		2 862 0 860 0
	40	1822	457		7970	163	9583	547	.801 4478	4 290	20		3 1293 0 1290 0
	50	2279	456		7807	163	0.357 0129	547	.801 0189	4 288	10		4 1724 0 1720 0
			456			163		547					5 2155 0 2150 0
39	0	0.336 2735			0.941 7644		0.357 0676		2.800 5901		0	21	
	10	3192	457		7481	163	1223	547	.800 1614	4 287	50		6 2586 0 2580 0
	20	3649	457		7317	164	1769	546	.799 7329	4 285	40		7 3017 0 3010 0
	30	4105	456		7154	163	2316	547	.799 3044	4 283	30		8 3448 0 3440 0
	40	4562	457		6991	163	2863	547	.798 8761	4 281	20		9 3879 0 3870 0
	50	5018	456		6828	163	3409	546	.798 4479	4 281	10		4290 4280
			457			163		547					1 429 0 428 0
40	0	0.336 5475			0.941 6665		0.357 3956		2.798 0198		0	20	
													2 858 0 856 0
													3 1287 0 1284 0
													4 1716 0 1712 0
													5 2145 0 2140 0
													6 2571 0 2568 0
													7 3003 0 2996 0
													8 3432 0 3424 0
													9 3861 0 3852 0
			Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

70° 20'

19° 40'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
40	0	0.336 5475		0.941 6665		0.357 3956		2.798 0198		0	20	Sine
	10	5931	456	6502	163	4503	547	.797 5918	4 280	50		456 457
	20	6388	457	6339	163	5050	546	.797 1640	4 278	40		1 45 6 45 7
	30	6844	456	6175	164	5596	547	.796 7362	4 278	30		2 91 2 91 4
	40	7301	457	6012	163	6143	547	.796 3086	4 276	20		3 136 8 137 1
	50	7757	456	5849	163	6690	547	.795 8811	4 275	10		4 182 4 182 8
			457		163		547		4 274			5 228 0 228 5
41	0	0.336 8214		0.941 5686		0.357 7237		2.795 4537		0	19	6 273 6 274 2
	10	8670	456	5522	164	7784	547	.795 0264	4 273	50		7 319 2 319 9
	20	9127	457	5359	163	8331	547	.794 5992	4 272	40		8 364 8 365 6
	30	9583	456	5196	163	8878	547	.794 1722	4 270	30		9 410 4 411 3
	40	0 337 0040	457	5032	164	9424	546	.793 7452	4 270	20		
	50	0496	456	4869	163	9971	547	.793 3184	4 268	10		
			457		164		547		4 267			
42	0	0.337 0953		0.941 4705		0.358 0518		2.792 8917		0	18	Cosine
	10	1409	456	4542	163	1065	547	.792 4651	4 266	50		163 164 165
	20	1865	456	4379	163	1612	547	.792 0386	4 265	40		1 16 3 16 4 16 5
	30	2322	457	4215	164	2159	547	.791 6123	4 263	30		2 32 6 32 8 33 0
	40	2778	456	4052	163	2706	547	.791 1860	4 263	20		3 18 9 49 2 49 5
	50	3235	457	3888	164	3253	547	.790 7599	4 261	10		4 65 2 65 6 66 0
			456		164		548		4 260			5 81 5 82 0 82 5
43	0	0.337 3691		0.941 3724		0.358 3801		2.790 3339		0	17	6 97 8 98 4 99 0
	10	4147	456	3561	163	4348	547	.789 9080	4 259	50		7 114 1 114 8 115 5
	20	4604	457	3397	164	4895	547	.789 4822	4 258	40		8 130 4 131 2 132 0
	30	5060	456	3234	163	5442	547	.789 0565	4 257	30		9 146 7 147 6 148 5
	40	5517	457	3070	164	5989	547	.788 6310	4 255	20		
	50	5973	456	2906	164	6536	547	.788 2055	4 255	10		
			456		163		547		4 253			
44	0	0.337 6429		0.941 2743		0.358 7083		2.787 7802		0	16	Tangent
	10	6886	457	2579	164	7631	548	.787 3550	4 252	50		546 547 548
	20	7342	456	2415	164	8178	547	.786 9299	4 251	40		1 54 6 54 7 54 8
	30	7798	456	2252	163	8725	547	.786 5049	4 250	30		2 109 2 109 4 109 6
	40	8255	457	2088	164	9272	547	.786 0801	4 248	20		3 163 8 164 1 164 4
	50	8711	456	1924	164	9820	548	.785 6553	4 248	10		4 218 4 218 8 219 2
			456		164		547		4 246			5 273 0 273 5 274 0
45	0	0.337 9167		0.941 1760		0.359 0367		2.785 2307		0	15	6 327 6 328 2 328 8
	10	9623	456	1596	164	0914	547	.784 8062	4 245	50		7 382 2 382 9 383 6
	20	0 338 0080	457	1432	164	1462	548	.784 3818	4 244	40		8 436 8 437 6 438 4
	30	0536	456	1269	163	2009	547	.783 9575	4 243	30		9 491 4 492 3 493 2
	40	0992	457	1105	164	2556	547	.783 5333	4 242	20		
	50	1449	457	0941	164	3104	548	.783 1092	4 241	10		
			456		164		547		4 239			
46	0	0.338 1905		0.941 0777		0.359 3651		2.782 6853		0	14	Cotangent
	10	2361	456	0613	164	4199	548	.782 2615	4 238	50		4280 4280
	20	2817	456	0449	164	4746	547	.781 8378	4 237	40		1 428 0 426 0
	30	3274	457	0285	164	5293	547	.781 4141	4 237	30		2 855 0 852 0
	40	3730	456	0121	164	5841	548	.780 9907	4 234	20		3 1284 0 1278 0
	50	4186	456	0940 9957	164	6388	547	.780 5673	4 234	10		4 1712 0 1704 0
			456		164		548		4 233			5 2140 0 2130 0
47	0	0.338 4642		0.940 9793		0.359 6936		2.780 1440		0	13	6 2568 0 2556 0
	10	5098	457	9629	164	7484	548	.779 7209	4 231	50		7 2996 0 2982 0
	20	5555	457	9464	165	8031	547	.779 2978	4 231	40		8 3424 0 3408 0
	30	6011	456	9300	164	8579	548	.778 8749	4 229	30		9 3852 0 3834 0
	40	6467	456	9136	164	9126	547	.778 4521	4 228	20		
	50	6923	456	8972	164	9674	548	.778 0294	4 227	10		
			456		164		548		4 225			
48	0	0.338 7379		0.940 8808		0.360 0222		2.777 6069		0	12	4240 4220
	10	7835	456	8643	165	0769	547	.777 1844	4 225	50		1 424 0 422 0
	20	8291	456	8479	164	1317	548	.776 7620	4 224	40		2 848 0 844 0
	30	8748	457	8315	164	1865	548	.776 3398	4 224	30		3 1272 0 1266 0
	40	9204	456	8151	164	2412	547	.775 9177	4 221	20		4 1696 0 1688 0
	50	9660	456	7986	165	2960	548	.775 4957	4 220	10		5 2120 0 2110 0
			456		164		548		4 219			6 2544 0 2532 0
49	0	0.339 0116		0.940 7822		0.360 3508		2.775 0738		0	11	7 2968 0 2954 0
	10	0572	456	7658	164	4056	548	.774 6520	4 218	50		8 3392 0 3376 0
	20	1028	456	7493	165	4603	547	.774 2303	4 217	40		9 3816 0 3798 0
	30	1484	456	7329	164	5151	548	.773 8088	4 215	30		
	40	1940	456	7164	165	5699	548	.773 3873	4 215	20		
	50	2396	456	7000	164	6247	548	.772 9660	4 213	10		
			456		165		548		4 212			
50	0	0.339 2852		0.940 6835		0.360 6795		2.772 5448		0	10	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

70° 10'

19° 50'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
50	0	0 339 2852		0.940 6835		0.360 6795		2.772 5448		0	10	
	10	3309	457	6671	164	7343	548	.772 1237	4 211	50		Sine
	20	3765	456	6506	165	7891	548	.771 7027	4 210	40		455 456 457
	30	4221	456	6342	164	8438	547	.771 2818	4 209	30		1 45 5 45 6 45 7
	40	4677	456	6177	165	8986	548	.770 8611	4 207	20		2 91 0 91 2 91 4
	50	5133	456	6013	164	9534	548	.770 4404	4 207	10		3 136 5 136 8 137 1
			456		165				4 205			4 182 0 182 4 182 8
51	0	0 339 5689		0.940 5848		0.361 0082		2.770 0199		0	9	
	10	6045	456	5683	165	0630	548	.769 5995	4 204	50		5 227 5 228 0 228 5
	20	6501	456	5519	164	1178	548	.769 1791	4 204	40		6 273 0 273 6 274 2
	30	6957	456	5354	165	1726	548	.768 7590	4 201	30		7 318 5 319 2 319 9
	40	7413	456	5189	165	2275	549	.768 3389	4 201	20		8 364 0 364 8 365 6
	50	7869	456	5025	164	2823	548	.767 9189	4 200	10		9 409 5 410 4 411 3
			456		165				4 199			
52	0	0 339 8325		0.940 4860		0.361 3371		2 767 4990		0	8	
	10	8781	456	4695	165	3919	548	.767 0793	4 197	50		Cosine
	20	9236	455	4530	165	4467	548	.766 6597	4 196	40		164 165 166
	30	9692	456	4366	164	5015	548	.766 2401	4 196	30		1 16 4 16 5 16 6
	40	0 340 0148	456	4201	165	5563	548	.765 8207	4 194	20		2 32 8 33 0 33 2
	50	0604	456	4036	165	6112	549	.765 4014	4 193	10		3 49 2 49 5 49 8
			456		165				4 192			4 65 6 66 0 66 4
53	0	0 340 1060		0.940 3871		0.361 6660		2.764 9822		0	7	
	10	1516	456	3706	165	7208	548	.764 5632	4 190	50		5 82 0 82 5 83 0
	20	1972	456	3541	165	7756	548	.764 1442	4 190	40		6 98 4 99 0 99 6
	30	2428	456	3376	165	8305	549	.763 7254	4 188	30		7 114 8 115 5 116 2
	40	2884	456	3211	165	8853	548	.763 3066	4 188	20		8 131 2 132 0 132 8
	50	3340	456	3046	165	9401	548	.762 8880	4 186	10		9 147 6 148 5 149 4
			455		165				4 185			
54	0	0 340 3796		0.940 2881		0.361 9949		2.762 4695		0	6	
	10	4251	456	2716	165	0498	549	.762 0511	4 184	50		Tangent
	20	4707	456	2551	165	1046	548	.761 6328	4 183	40		547 548 549
	30	5163	456	2386	165	1595	549	.761 2146	4 182	30		1 54 7 54 8 54 9
	40	5619	456	2221	165	2143	548	.760 7966	4 182	20		2 109 4 109 6 109 8
	50	6075	456	2056	165	2691	548	.760 3786	4 180	10		3 164 1 164 4 164 7
			456		165				4 180			4 218 8 219 2 219 6
55	0	0 340 6631		0.940 1891		0.362 3240		2.759 9608		0	5	
	10	6986	455	1726	165	3788	548	.759 5431	4 178	50		5 273 5 274 0 274 5
	20	7442	456	1560	166	4337	549	.759 1255	4 177	40		6 328 2 328 8 329 4
	30	7898	456	1395	165	4885	548	.758 7079	4 176	30		7 382 9 383 6 384 3
	40	8354	456	1230	165	5434	549	.758 2906	4 176	20		8 437 6 438 4 439 2
	50	8810	455	1065	166	5982	548	.757 8733	4 173	10		9 492 3 493 2 494 1
			455		166				4 172			
56	0	0 340 9265		0.940 0899		0.362 6531		2.757 4561		0	4	
	10	9721	456	0734	165	7080	549	.757 0391	4 170	50		Cotangent
	20	0 341 0177	456	0569	166	7628	548	.756 6221	4 170	40		4210 4200
	30	0633	456	0403	166	8177	549	.756 2053	4 168	30		1 421 0 420 0
	40	1088	455	0238	165	8725	548	.755 7886	4 167	20		2 842 0 840 0
	50	1544	456	0073	166	9274	549	.755 3719	4 167	10		3 1263 0 1260 0
			456						4 165			4 1684 0 1680 0
57	0	0 341 2000		0.939 9907		0.362 9823		2.754 9554		0	3	
	10	2455	455	9742	165	0363	548	.754 5391	4 163	50		5 2105 0 2100 0
	20	2911	456	9576	166	0920	549	.754 1228	4 163	40		6 2526 0 2520 0
	30	3367	456	9411	165	1469	549	.753 7066	4 162	30		7 2947 0 2940 0
	40	3823	456	9245	165	2018	548	.753 2906	4 160	20		8 3368 0 3360 0
	50	4278	455	9080	166	2566	548	.752 8746	4 160	10		9 3789 0 3780 0
			456						4 158			
58	0	0 341 4734		0.939 8914		0.363 3115		2.752 4588		0	2	
	10	5190	456	8749	165	3664	549	.752 0431	4 157	50		4180 4160
	20	5645	455	8583	166	4213	549	.751 6274	4 157	40		1 418 0 416 0
	30	6101	456	8418	165	4762	549	.751 2119	4 155	30		2 836 0 832 0
	40	6557	456	8252	166	5311	549	.750 7966	4 153	20		3 1254 0 1248 0
	50	7012	456	8086	165	5860	548	.750 3813	4 153	10		4 1672 0 1664 0
			456						4 152			5 2090 0 2080 0
59	0	0 341 7468		0.939 7921		0 363 6408		2.749 9661		0	1	
	10	7923	455	7755	166	6957	549	.749 5510	4 151	50		6 2508 0 2496 0
	20	8379	456	7589	166	7506	549	.749 1361	4 149	40		7 2926 0 2912 0
	30	8835	456	7424	165	8055	549	.748 7213	4 148	30		8 3344 0 3328 0
	40	9290	455	7258	166	8604	549	.748 3065	4 148	20		9 3762 0 3744 0
	50	9746	455	7092	166	9153	549	.747 8919	4 146	10		4140
			455		166				4 145			1 414 0
60	0	0 342 0201		0.939 6926		0.363 9702		2.747 4774		0	0	
												2 828 0
												3 1242 0
												4 1656 0
												5 2070 0
												6 2484 0
												7 2898 0
												8 3312 0
												9 3726 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

70° 0'

20° 0'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
0	0	0.342 0201		0.939 6926		0.363 9702		2.747 4774		0	60	
	10	0657	456	6760	166	0.364 0251	549	.747 0630	4 144	50		Sine
	20	1113	456	6595	165	0800	549	.746 6487	4 143	40		455 456
	30	1568	455	6429	166	1350	550	.746 2346	4 141	30		1 45 5 45 6
	40	2024	456	6263	166	1899	549	.745 8205	4 141	20		2 91 0 91 2
	50	2479	455	6097	166	2448	549	.745 4066	4 139	10		3 136 5 136 8
			456		166		549		4 139			4 182 0 182 4
1	0	0.342 2936		0.939 5931		0.364 2997		2.744 9927		0	59	
	10	3390	455	5765	166	3546	549	.744 5790	4 137	50		5 227 5 228 0
	20	3846	456	5599	166	4095	549	.744 1654	4 136	40		6 273 0 273 6
	30	4301	455	5433	166	4644	549	.743 7518	4 136	30		7 318 5 319 2
	40	4757	456	5267	166	5194	550	.743 3384	4 134	20		8 364 0 364 8
	50	5212	455	5101	166	5743	549	.742 9251	4 133	10		9 409 5 410 4
			456		166		549		4 131			
2	0	0.342 5668		0.939 4935		0.364 6292		2.742 5120		0	58	
	10	6123	455	4769	166	6841	549	.742 0989	4 131	50		Cosine
	20	6579	456	4603	166	7391	550	.741 6859	4 130	40		165 166 167
	30	7034	455	4436	167	7940	549	.741 2731	4 128	30		1 16 5 16 6 16 7
	40	7490	456	4270	166	8489	549	.740 8603	4 128	20		2 33 0 33 2 33 4
	50	7945	455	4104	166	9039	550	.740 4477	4 126	10		3 19 5 49 8 50 1
			455		166		549		4 126			4 66 0 66 1 66 8
									4 125			5 82 5 83 0 83 5
3	0	0.342 8400		0.939 3938		0.364 9688		2.740 0352		0	57	
	10	8856	456	3772	167	0 365 0138	550	.739 6228	4 124	50		6 99 0 99 6 100 2
	20	9311	455	3605	167	0687	549	.739 2105	4 123	40		7 115 5 116 2 116 9
	30	9767	456	3439	166	1236	549	.738 7983	4 122	30		8 132 0 132 8 133 6
	40	0 343 0222	455	3273	166	1786	550	.738 3862	4 121	20		9 148 5 149 4 150 3
	50	0678	456	3107	166	2335	549	.737 9742	4 120	10		
			455		167		550		4 119			
4	0	0 343 1133		0.939 2940		0.365 2885		2.737 5623		0	56	
	10	1588	455	2774	166	3434	549	.737 1506	4 117	50		Tangent
	20	2044	456	2608	166	3984	550	.736 7389	4 117	40		549 550 551
	30	2499	455	2441	167	4533	549	.736 3274	4 115	30		1 54 9 55 0 55 1
	40	2954	456	2275	166	5083	550	.735 9159	4 115	20		2 109 8 110 0 110 2
	50	3410	455	2108	167	5633	550	.735 5046	4 113	10		3 164 7 165 0 165 3
					166		549		4 112			4 219 6 220 0 220 4
5	0	0 343 3865		0.939 1942		0 365 6182		2.735 0934		0	55	
	10	4320	455	1775	167	6732	550	.734 6823	4 111	50		5 274 5 275 0 275 5
	20	4776	456	1609	166	7282	550	.734 2713	4 110	40		6 329 4 330 0 330 6
	30	5231	455	1442	167	7831	549	.733 8604	4 109	30		7 384 3 385 0 385 7
	40	5686	456	1276	166	8381	550	.733 4497	4 107	20		8 439 2 440 0 440 8
	50	6142	455	1109	167	8931	550	.733 0390	4 107	10		9 494 1 495 0 495 9
			455		166		549		4 106			
6	0	0 343 6597		0.939 0943		0.365 9480		2.732 6284		0	54	
	10	7052	455	0776	167	0.366 0030	550	.732 2180	4 104	50		Cotangent
	20	7508	456	0609	166	0580	550	.731 8076	4 104	40		4140 4120
	30	7963	455	0443	166	1130	550	.731 3974	4 102	30		1 414 0 412 0
	40	8418	455	0276	167	1679	549	.730 9873	4 101	20		2 828 0 824 0
	50	8873	456	0109	167	2229	550	.730 5773	4 100	10		3 1242 0 1236 0
					167		550		4 099			4 1656 0 1648 0
7	0	0.343 9329		0.938 9942		0.366 2779		2.730 1674		0	53	
	10	9784	455	9776	166	3329	550	.729 7576	4 098	50		5 2070 0 2060 0
	20	0 344 0239	455	9609	167	3879	550	.729 3479	4 097	40		6 2484 0 2476 0
	30	0694	456	9442	167	4429	550	.728 9383	4 096	30		7 2898 0 2884 0
	40	1149	455	9275	167	4979	550	.728 5288	4 095	20		8 3312 0 3296 0
	50	1605	456	9108	166	5529	550	.728 1195	4 093	10		9 3726 0 3708 0
			455									
8	0	0 344 2060		0.938 8942		0.366 6079		2.727 7102		0	52	
	10	2515	455	8775	167	6629	550	.727 3011	4 091	50		4100 4090
	20	2970	455	8608	167	7179	550	.726 8920	4 091	40		1 410 0 409 0
	30	3425	455	8441	167	7729	550	.726 4831	4 089	30		2 820 0 818 0
	40	3880	456	8274	167	8279	550	.726 0743	4 088	20		3 1230 0 1227 0
	50	4336	455	8107	167	8829	550	.725 6655	4 086	10		4 1640 0 1636 0
												5 2050 0 2045 0
9	0	0.344 4791		0.938 7940		0.366 9379		2.725 2569		0	51	
	10	5246	455	7773	167	9929	550	.724 8484	4 085	50		6 2460 0 2454 0
	20	5701	455	7606	167	0.367 0479	550	.724 4400	4 084	40		7 2870 0 2863 0
	30	6156	455	7439	167	1029	550	.724 0318	4 082	30		8 3280 0 3272 0
	40	6611	455	7272	167	1579	550	.723 6236	4 081	20		9 3690 0 3681 0
	50	7066	455	7105	167	2129	551	.723 2155	4 079	10		
10	0	0.344 7621		0.938 6938		0.367 2680		2.722 8076		0	50	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff			Proportional Parts

69° 50'

20° 10'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
10	0	0.344 7621		0.938 6938		0.367 2680		2.722 8076		0	50	
	10	7977	456		168	3230	550	.722 3997	4 079	50		Sine
	20	8432	455		167	3780	550	.721 9920	4 077	40		454 455 456
	30	8887	455		167	4330	550	.721 5843	4 077	30		1 45 4 45 5 45 6
	40	9342	455		167	4881	551	.721 1768	4 075	20		2 90 8 91 0 91 2
	50	9797	455		167	5431	550	.720 7694	4 074	10		3 136 2 136 5 136 8
			455		168		550		4 074			4 181 6 182 0 182 4
11	0	0.345 0252		0.938 6934		0.367 5981		2.720 3620		0	49	
	10	0707	455		167	6532	551	.719 9548	4 072	50		5 227 0 227 5 228 0
	20	1162	455		167	7082	550	.719 5477	4 071	40		6 272 4 273 0 273 6
	30	1617	455		168	7632	550	.719 1407	4 070	30		7 317 8 318 5 319 2
	40	2072	455		167	8183	551	.718 7339	4 068	20		8 363 2 364 0 364 8
	50	2527	455		167	8733	550	.718 3271	4 068	10		9 408 6 409 5 410 4
			455		168		551		4 067			
12	0	0.345 2982		0.938 4930		0.367 9284		2.717 9204		0	48	
	10	3437	455		167	9834	550	.717 5138	4 066	50		Cosine
	20	3892	455		168	0.368 0385	551	.717 1074	4 064	40		167 168 169
	30	4347	455		167	0935	550	.716 7010	4 064	30		1 16 7 16 8 16 9
	40	4802	455		168	1486	551	.716 2948	4 062	20		2 33 4 33 6 33 8
	50	5257	455		167	2036	550	.715 8887	4 061	10		3 50 1 50 4 50 7
			455		168		551		4 061			4 68 8 67 2 67 6
13	0	0.345 5712		0.938 3925		0.368 2587		2.715 4826		0	47	
	10	6167	455		167	3137	550	.715 0767	4 059	50		5 83 5 84 0 84 5
	20	6622	455		168	3688	551	.714 6709	4 058	40		6 100 2 100 8 101 4
	30	7077	455		167	4238	550	.714 2652	4 057	30		7 116 9 117 6 118 3
	40	7532	455		168	4789	551	.713 8596	4 056	20		8 133 6 134 4 135 2
	50	7986	454		168	5340	551	.713 4541	4 055	10		9 150 3 151 2 152 1
			455		167		550		4 054			
14	0	0.345 8441		0.938 2920		0.368 5890		2.713 0487		0	46	
	10	8896	455		168	6441	551	.712 6434	4 053	50		Tangent
	20	9351	455		168	6992	551	.712 2382	4 052	40		550 551 552
	30	9806	455		167	7542	550	.711 8332	4 050	30		1 55 0 55 1 55 2
	40	0.346 0261	455		168	8093	551	.711 4282	4 050	20		2 110 0 110 2 110 4
	50	0716	455		168	8644	551	.710 0234	4 048	10		3 165 0 165 3 165 6
			455		168		551		4 048			4 220 0 220 4 220 8
15	0	0.346 1171		0.938 1913		0.368 9195		2.710 6186		0	45	
	10	1625	454		167	9746	551	.710 2140	4 046	50		5 275 0 275 5 276 0
	20	2080	455		168	0.369 0296	550	.709 8094	4 046	40		6 330 0 330 6 331 2
	30	2535	455		168	0847	551	.709 4050	4 044	30		7 385 0 385 7 386 1
	40	2990	455		168	1398	551	.709 0007	4 043	20		8 440 0 440 8 441 6
	50	3445	455		168	1949	551	.708 5965	4 042	10		9 495 0 495 9 496 8
			455		168		551		4 042			
16	0	0.346 3900		0.938 0906		0.369 2500		2.708 1923		0	44	
	10	4354	454		168	3051	551	.707 7883	4 040	50		Cotangent
	20	4809	455		168	3602	551	.707 3844	4 039	40		4080 4070
	30	5264	455		168	4153	551	.706 9806	4 038	30		1 408 0 407 0
	40	5719	455		168	4704	551	.706 5770	4 036	20		2 816 0 814 0
	50	6173	454		168	5255	551	.706 1734	4 036	10		3 1224 0 1221 0
			455		168		551		4 035			4 1632 0 1628 0
17	0	0.346 6628		0.937 9898		0.369 5806		2.705 7699		0	43	
	10	7083	455		168	6357	551	.705 3665	4 034	50		5 2040 0 2035 0
	20	7538	455		168	6908	551	.704 9633	4 032	40		6 2448 0 2412 0
	30	7992	454		168	7459	551	.704 5601	4 032	30		7 2856 0 2849 0
	40	8447	455		168	8010	551	.704 1571	4 030	20		8 3264 0 3256 0
	50	8902	455		169	8561	551	.703 7541	4 028	10		9 3672 0 3663 0
			455		169		551		4 028			
18	0	0.346 9357		0.937 8889		0.369 9112		2.703 3513		0	42	
	10	9811	454		168	9663	551	.702 9485	4 028	50		4050 4040
	20	0.347 0266	455		168	0.370 0215	552	.702 5459	4 026	40		1 405 0 404 0
	30	0721	455		169	0766	551	.702 1434	4 025	30		2 810 0 808 0
	40	1175	454		168	1317	551	.701 7410	4 024	20		3 1215 0 1212 0
	50	1630	455		168	1868	552	.701 3386	4 024	10		4 1620 0 1616 0
			455		168		552		4 022			5 2025 0 2020 0
19	0	0.347 2086		0.937 7880		0.370 2420		2.700 9364		0	41	
	10	2539	454		169	2971	551	.700 5343	4 021	50		6 2430 0 2424 0
	20	2994	455		168	3522	551	.700 1323	4 020	40		7 2835 0 2828 0
	30	3448	454		168	4073	551	.699 7304	4 019	30		8 3240 0 3232 0
	40	3903	455		169	4625	552	.699 3287	4 017	20		9 3645 0 3636 0
	50	4358	454		168	5176	551	.698 9270	4 017	10		
			454		169		552		4 016			
20	0	0.347 4812		0.937 6869		0.370 5728		2.698 5254		0	40	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff			Proportional Parts

69° 40'

20° 20'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
20	0	0.347 4812		0.937 6869		0.370 5728		2.698 5254		0	40	Sine
	10	5267	455	6701	168	6279	551	698 1239	4 015	50		454 455
	20	5722	455	6532	169	6830	551	.697 7226	4 013	40		1 45 4 45 5
	30	6176	454	6364	168	7382	552	.697 3213	4 013	30		2 90 8 91 0
	40	6631	455	6195	169	7933	551	.696 9201	4 012	20		3 136 2 136 5
	50	7085	454	6027	168	8485	552	.696 5191	4 010	10		4 181 6 182 0
			455		169		551		4 010			5 227 0 227 5
21	0	0.347 7540		0.937 5868		0.370 9036		2.696 1181		0	39	Sine
	10	7994	454	5690	168	9588	552	.695 7173	4 008	50		6 272 4 273 0
	20	8449	455	5521	169	0139	551	.695 3166	4 007	40		7 317 8 318 5
	30	8903	454	5352	169	0691	552	.694 9159	4 007	30		8 363 2 364 0
	40	9358	455	5184	168	1242	551	.694 5154	4 005	20		9 408 6 409 5
	50	9812	454	5015	169	1794	552	.694 1150	4 004	10		
			455		169		552		4 003			
22	0	0.348 0267		0.937 4846		0.371 2346		2.693 7147		0	38	Cosine
	10	0721	454	4677	169	2897	551	.693 3144	4 003	50		168 169 170
	20	1176	455	4509	168	3449	552	.692 9143	4 001	40		1 16 8 16 9 17 0
	30	1630	454	4340	169	4001	552	.692 5143	4 000	30		2 33 6 33 8 34 0
	40	2085	455	4171	169	4552	551	.692 1144	3 999	20		3 50 4 50 7 51 0
	50	2539	454	4002	169	5104	552	.691 7146	3 998	10		4 67 2 67 6 68 0
			455		169		552		3 997			5 84 0 84 5 85 0
23	0	0.348 2994		0.937 3833		0.371 5656		2.691 3149		0	37	Cosine
	10	3448	454	3665	168	6208	552	.690 9153	3 996	50		6 100 8 101 4 102 0
	20	3903	455	3496	169	6759	551	.690 5159	3 994	40		7 117 6 118 3 119 0
	30	4357	454	3327	169	7311	552	.690 1165	3 994	30		8 134 4 135 2 136 0
	40	4812	455	3158	169	7863	552	.689 7172	3 993	20		9 151 2 152 1 153 0
	50	5266	454	2989	169	8415	552	.689 3180	3 992	10		
			455		169		552		3 990			
24	0	0.348 5720		0.937 2820		0.371 8967		2.688 9190		0	36	Tangent
	10	6175	455	2651	169	9519	552	.688 5200	3 990	50		551 552 553
	20	6629	454	2482	169	0070	551	.688 1211	3 989	40		1 110 2 110 4 110 6
	30	7084	455	2313	169	0622	552	.687 7224	3 987	30		2 165 3 165 6 165 9
	40	7538	454	2144	169	1174	552	.687 3237	3 987	20		3 220 4 220 8 221 2
	50	7992	455	1975	169	1726	552	.686 9257	3 985	10		4 275 5 276 0 276 5
			455		169		552		3 985			5 330 6 331 2 331 8
25	0	0.348 8447		0.937 1806		0.372 2278		2.686 5267		0	35	Tangent
	10	8901	454	1636	170	2830	552	.686 1284	3 983	50		6 385 7 386 1 387 1
	20	9355	454	1467	169	3382	552	.685 7302	3 982	40		7 440 8 441 6 442 4
	30	9810	455	1298	169	3934	552	.685 3320	3 982	30		8 495 9 496 8 497 7
	40	0 349 0264	454	1129	169	4486	552	.684 9340	3 980	20		
	50	0718	455	0960	170	5038	552	.684 5361	3 979	10		
			455		170		552		3 978			
26	0	0 349 1173		0 937 0790		0.372 5690		2.684 1383		0	34	Cotangent
	10	1627	454	0621	169	6143	553	.683 7405	3 978	50		4010 4000
	20	2081	454	0452	169	6695	552	.683 3429	3 976	40		1 401 0 400 0
	30	2536	455	0283	169	7247	552	.682 9454	3 975	30		2 802 0 800 0
	40	2990	454	0113	169	7799	552	.682 5480	3 973	20		3 1203 0 1200 0
	50	3444	454	0 936 9944	170	8351	552	.682 1507	3 972	10		4 1601 0 1600 0
			454		170		552		3 972			5 2005 0 2000 0
27	0	0.349 3898		0.936 9774		0.372 8903		2.681 7535		0	33	Cotangent
	10	4353	455	9605	169	9456	553	.681 3564	3 971	50		6 2406 0 2400 0
	20	4807	454	9436	169	0008	552	.680 9594	3 970	40		7 2807 0 2800 0
	30	5261	454	9266	170	0560	552	.680 5625	3 969	30		8 3208 0 3200 0
	40	5715	455	9097	170	1113	552	.680 1657	3 967	20		9 3609 0 3600 0
	50	6170	454	8927	169	1665	552	.679 7690	3 965	10		
			454		169		552		3 965			
28	0	0.349 6624		0.936 8768		0.373 2217		2.679 3725		0	32	Cotangent
	10	7078	454	8588	169	2770	553	.678 9760	3 965	50		3990 3980
	20	7532	454	8419	169	3322	552	.678 5796	3 964	40		1 399 0 398 0
	30	7986	455	8249	170	3874	552	.678 1833	3 963	30		2 798 0 796 0
	40	8441	454	8079	170	4427	553	.677 7872	3 961	20		3 1197 0 1194 0
	50	8895	454	7910	170	4979	552	.677 3911	3 960	10		4 1596 0 1592 0
			454		170		553		3 960			5 1905 0 1900 0
29	0	0.349 9349		0.936 7740		0.373 5532		2.676 9951		0	31	Cotangent
	10	9803	454	7571	169	6084	552	.676 5993	3 958	50		6 2394 0 2388 0
	20	0.350 0257	454	7401	170	6637	553	.676 2035	3 958	40		7 2793 0 2786 0
	30	0711	455	7231	170	7189	552	.675 8078	3 957	30		8 3192 0 3184 0
	40	1166	455	7061	170	7742	553	.675 4123	3 955	20		9 3591 0 3582 0
	50	1620	454	6892	169	8294	552	.675 0168	3 955	10		
			454		170		553		3 953			
30	0	0.350 2074		0.936 6722		0.373 8847		2.674 6215		0	30	Cotangent
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

69° 30'

20° 30'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
30	0	0.350 2074		0.936 6722		0.373 8847		2.674 6215		0	30	
	10	2528	454	6552	170	9399	552	674 2262	3 953	50		Sine
	20	2982	454	6382	170	9952	553	.673 8311	3 951	40		453 454 455
	30	3436	454	6212	169	0 374 0505	552	.673 4361	3 950	30		1 15 3 45 4 45 5
	40	3890	454	6043	170	1057	553	.673 0411	3 948	20		2 90 6 90 8 91 0
	50	4344	454	5873	170	1610	553	.672 6463	3 947	10		3 135 9 136 2 136 5
												4 181 2 181 6 182 0
31	0	0 350 4798		0.936 5703		0.374 2163		2 672 2516		0	29	
	10	5252	454	5533	170	2715	552	.671 8569	3 947	50		5 226 5 227 0 227 5
	20	5706	454	5363	170	3268	553	.671 4624	3 945	40		6 271 8 272 4 273 0
	30	6160	455	5193	170	3821	553	.671 0680	3 944	30		7 317 1 317 8 318 5
	40	6615	454	5023	170	4374	552	.670 6736	3 944	20		8 362 4 363 2 364 0
	50	7069	454	4853	170	4926	553	.670 2794	3 942	10		9 407 7 408 6 409 5
32	0	0 350 7623		0.936 4683		0.374 5479		2.669 8853		0	28	Cosine
	10	7977	454	4513	170	6032	553	.669 4913	3 940	50		169 170 171
	20	8431	454	4343	170	6585	553	.669 0974	3 939	40		1 16 9 17 0 17 1
	30	8885	454	4173	170	7138	553	.668 7035	3 939	30		2 35 8 34 0 34 2
	40	9339	454	4003	171	7691	553	.668 3098	3 937	20		3 50 7 51 0 51 3
	50	9793	453	3832	170	8244	553	.667 9162	3 936	10		4 67 6 68 0 68 4
33	0	0 351 0246		0.936 3662		0 374 8797		2.667 5227		0	27	
	10	0700	454	3492	170	9350	553	.667 1293	3 934	50		5 84 5 85 0 85 5
	20	1154	454	3322	170	9903	553	.666 7360	3 933	40		6 101 4 102 0 102 6
	30	1608	454	3152	170	0.375 0456	553	.666 3428	3 932	30		7 118 3 119 0 119 7
	40	2062	454	2981	171	1009	553	.665 9497	3 931	20		8 145 2 136 0 136 8
	50	2516	454	2811	170	1562	553	.665 5567	3 930	10		9 152 1 153 0 153 9
34	0	0 351 2970		0 936 2641		0.375 2115		2.665 1638		0	26	Tangent
	10	3424	454	2470	171	2668	553	.664 7710	3 928	50		552 553 554
	20	3878	454	2300	170	3221	553	.664 3783	3 927	40		1 55 2 55 3 55 4
	30	4332	454	2130	170	3774	553	.663 9857	3 926	30		2 110 4 110 6 110 8
	40	4786	454	1959	171	4327	553	.663 5932	3 925	20		3 165 6 165 9 166 2
	50	5240	453	1789	170	4880	553	.663 2008	3 924	10		4 220 8 221 2 221 6
35	0	0.351 5693		0.936 1618		0.375 5433		2.662 8085		0	25	
	10	6147	454	1448	170	5987	554	.662 4163	3 922	50		5 276 0 276 5 277 0
	20	6601	454	1277	171	6540	553	.662 0242	3 921	40		6 331 2 331 8 332 4
	30	7055	454	1107	171	7093	553	.661 6322	3 920	30		7 386 4 387 1 387 8
	40	7509	454	936	170	7646	553	.661 2404	3 918	20		8 441 6 442 4 443 2
	50	7963	453	766	171	8200	553	.660 8486	3 917	10		9 496 8 497 7 498 6
36	0	0.351 8416		0.936 0595		0 375 8753		2.660 4569		0	24	Cotangent
	10	8870	454	0425	170	9306	553	.660 0653	3 916	50		3950 3940
	20	9324	454	0254	170	9860	554	.659 6738	3 915	40		1 395 0 394 0
	30	9778	454	0084	170	0 376 0413	553	.659 2824	3 914	30		2 790 0 788 0
	40	0 352 0232	454	9913	171	0966	554	.658 8912	3 912	20		3 1183 0 1182 0
	50	0685	454	9742	171	1520	553	.658 5000	3 911	10		4 1580 0 1576 0
37	0	0 352 1139		0.935 9571		0 376 2073		2 658 1089		0	23	
	10	1593	454	9401	170	2627	554	.657 7179	3 910	50		5 1975 0 1970 0
	20	2047	454	9230	171	3180	553	.657 3270	3 909	40		6 2370 0 2361 0
	30	2500	453	9059	171	3733	553	.656 9363	3 907	30		7 2765 0 2758 0
	40	2954	454	8888	170	4287	554	.656 5456	3 906	20		8 3160 0 3151 0
	50	3408	454	8718	171	4841	553	.656 1550	3 905	10		9 3555 0 3546 0
38	0	0.352 3862		0.935 8547		0 376 5394		2.655 7645		0	22	
	10	4315	453	8376	171	5948	554	.655 3742	3 903	50		3920 3910
	20	4769	454	8205	171	6501	553	.654 9839	3 903	40		1 392 0 391 0
	30	5223	453	8034	171	7055	554	.654 5937	3 902	30		2 784 0 782 0
	40	5676	453	7863	171	7608	553	.654 2036	3 901	20		3 1176 0 1173 0
	50	6130	454	7692	171	8162	554	.653 8137	3 899	10		4 1568 0 1564 0
39	0	0.352 6584		0.935 7521		0.376 8716		2.653 4238		0	21	
	10	7037	453	7350	171	9269	553	.653 0340	3 898	50		5 1900 0 1955 0
	20	7491	454	7179	171	9823	554	.652 6444	3 896	40		6 2332 0 2316 0
	30	7945	453	7008	171	0.377 0377	554	.652 2548	3 896	30		7 2744 0 2737 0
	40	8398	453	6837	171	0931	554	.651 8653	3 895	20		8 3136 0 3128 0
	50	8852	454	6666	171	1484	553	.651 4759	3 894	10		9 3528 0 3519 0
40	0	0.352 9306		0.935 6495		0.377 2038		2.651 0867		0	20	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

69° 20'

20° 40'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff.			Proportional Parts
40	0	0.352 9306	453	0.935 6495	171	0.377 2038	554	2.651 0867	3 892	0	20	
	10	9759	454	6324	171	2592	554	.650 6975	3 891	50		
	20	0.353 0213	453	6153	171	3146	554	.650 3084	3 889	40		Sine
	30	0666	454	5982	171	3700	553	.649 9195	3 889	30		453 454
	40	1120	454	5811	172	4253	554	.649 5306	3 888	20		1 45 3 45 4
	50	1574	453	5639	171	4807	554	.649 1418	3 887	10		2 90 6 90 8
41	0	0.353 2027	454	0.935 5468	171	0.377 5361	554	2.648 7531	3 885	0	19	
	10	2481	453	5297	171	5915	554	.648 3646	3 885	50		3 135 9 136 2
	20	2934	454	5126	172	6469	554	.647 9761	3 884	40		4 181 2 181 6
	30	3388	453	4954	171	7023	554	.647 5877	3 882	30		5 226 5 227 0
	40	3841	454	4783	171	7577	554	.647 1995	3 882	20		6 271 8 272 4
	50	4295	453	4612	172	8131	554	.646 8113	3 881	10		7 317 1 317 8
42	0	0.353 4748	454	0.935 4440	171	0.377 8685	554	2.646 4232	3 880	0	18	
	10	5202	453	4269	171	9239	554	.646 0352	3 878	50		Cosine
	20	5655	454	4098	172	9793	554	.645 6474	3 878	40		171 172 173
	30	6109	453	3926	171	0.378 0347	554	.645 2596	3 877	30		1 17 1 17 2 17 3
	40	6562	454	3755	171	0901	555	.644 8719	3 876	20		2 34 2 34 4 34 6
	50	7016	453	3583	172	1456	554	.644 4843	3 874	10		3 51 3 51 6 51 9
43	0	0.353 7469	454	0.935 3412	172	0.378 2010	554	2.644 0969	3 874	0	17	
	10	7923	453	3240	171	2564	554	.643 7095	3 873	50		4 68 4 68 8 69 2
	20	8376	453	3069	171	3118	554	.643 3222	3 872	40		5 85 5 86 0 86 5
	30	8830	454	2897	172	3672	555	.642 9350	3 871	30		6 102 6 103 2 103 8
	40	9283	453	2726	171	4227	554	.642 5479	3 870	20		7 119 7 120 4 121 1
	50	9737	454	2554	172	4781	554	.642 1610	3 869	10		8 136 8 137 6 138 4
44	0	0.354 0190	453	0.935 2382	171	0.378 5335	554	2.641 7741	3 868	0	16	
	10	0643	454	2211	172	5889	555	.641 3873	3 867	50		Tangent
	20	1097	453	2039	172	6444	554	.641 0006	3 866	40		553 554 555
	30	1550	454	1867	171	6998	554	.640 6140	3 866	30		1 55 3 55 4 55 5
	40	2004	453	1696	172	7552	555	.640 2276	3 864	20		2 110 6 110 8 111 0
	50	2457	453	1524	172	8107	554	.639 8412	3 863	10		3 165 9 166 2 166 5
45	0	0.354 2910	454	0.935 1352	172	0.378 8661	555	2.639 4549	3 862	0	15	
	10	3364	453	1180	171	9216	554	.639 0687	3 861	50		4 221 2 221 6 222 0
	20	3817	453	1009	172	9770	554	.638 6826	3 860	40		5 276 5 277 0 277 5
	30	4270	454	0837	172	0.379 0324	555	.638 2966	3 859	30		6 331 8 332 4 333 0
	40	4724	453	0665	172	0879	554	.637 9107	3 858	20		7 387 1 387 8 388 5
	50	5177	453	0493	172	1433	555	.637 5249	3 857	10		8 442 4 443 2 444 0
46	0	0.354 5630	454	0.935 0321	172	0.379 1988	554	2.637 1392	3 856	0	14	
	10	6084	453	0149	172	2542	555	.636 7536	3 855	50		Cotangent
	20	6537	453	0.934 9977	172	3097	555	.636 3681	3 854	40		3890 3880
	30	6990	454	9805	172	3652	554	.635 9821	3 853	30		1 389 0 388 0
	40	7444	453	9633	172	4206	555	.635 5974	3 852	20		2 778 0 776 0
	50	7897	453	9461	172	4761	554	.635 2122	3 851	10		3 1167 0 1164 0
47	0	0.354 8350	453	0.934 9289	172	0.379 5315	555	2.634 8271	3 850	0	13	
	10	8803	454	9117	172	5870	555	.634 4421	3 849	50		4 1556 0 1552 0
	20	9257	453	8945	172	6425	554	.634 0572	3 848	40		5 1945 0 1940 0
	30	9710	453	8773	172	6979	554	.633 6724	3 847	30		6 2334 0 2328 0
	40	0.355 0163	453	8601	172	7534	555	.633 2877	3 846	20		7 2723 0 2716 0
	50	0616	454	8429	172	8089	555	.632 9031	3 845	10		8 3112 0 3104 0
48	0	0.355 1070	453	0.934 8257	172	0.379 8644	554	2.632 5186	3 844	0	12	
	10	1523	453	8085	173	9198	555	.632 1342	3 844	50		9 3501 0 3492 0
	20	1976	453	7912	172	9753	555	.631 7498	3 843	40		3870 3860
	30	2429	453	7740	172	0.380 0308	555	.631 3656	3 842	30		1 387 0 386 0
	40	2882	454	7568	172	0863	555	.630 9815	3 841	20		2 774 0 772 0
	50	3336	453	7396	173	1418	555	.630 5975	3 839	10		3 1161 0 1158 0
49	0	0.355 3789	453	0.934 7223	172	0.380 1973	555	2.630 2136	3 839	0	11	
	10	4242	453	7051	172	2528	554	.629 8297	3 837	50		4 1548 0 1544 0
	20	4695	453	6879	173	3082	555	.629 4460	3 836	40		5 1935 0 1930 0
	30	5148	453	6706	172	3637	555	.629 0624	3 836	30		6 2322 0 2316 0
	40	5601	453	6534	172	4192	555	.628 6788	3 834	20		7 2709 0 2702 0
	50	6054	454	6362	173	4747	555	.628 2954	3 833	10		8 3096 0 3088 0
50	0	0.355 6508		0.934 6189		0.380 5302		2.627 9121		0	10	
												9 3483 0 3474 0
												3850 3830
												1 385 0 383 0
												2 770 0 766 0
												3 1155 0 1149 0
												4 1540 0 1532 0
												5 1925 0 1915 0
												6 2310 0 2298 0
												7 2695 0 2681 0
												8 3080 0 3064 0
												9 3465 0 3447 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

69° 10'

20° 50'

	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff.			Proportional Parts
50	0	0.355 6508		0.934 6189		0.380 5302		2.627 9121		0	10	
	10	6961	453	6017	172	5857	555	.627 5288	3 833	50		Sine
	20	7414	453	5844	173	6412	555	.627 1457	3 831	40		452 453
	30	7867	453	5672	172	6968	556	.626 7626	3 831	30		1 45 2 45 3
	40	8320	453	5499	173	7523	555	.626 3797	3 829	20		2 90 4 90 6
	50	8773	453	5327	172	8078	555	.625 9968	3 829	10		3 135 6 135 9
			453		173				3 827			4 180 8 181 2
51	0	0.355 9226		0.934 6154		0.380 8633		2.625 6141		0	9	
	10	9679	453	4982	172	9188	555	.625 2314	3 827	50		5 226 0 226 5
	20	0.356 0132	453	4809	173	9743	555	.624 8489	3 825	40		6 271 2 271 8
	30	0585	453	4637	172	0 381 0298	555	.624 4664	3 825	30		7 316 4 317 1
	40	1038	453	4464	173	0854	556	.624 0840	3 824	20		8 361 6 362 4
	50	1491	453	4291	173	1409	555	.623 7018	3 822	10		9 406 8 407 7
			453		172				3 822			
52	0	0.356 1944		0.934 4119		0 381 1964		2.623 3196		0	8	
	10	2397	453	3946	173	2519	555	.622 9375	3 821	50		Cosine
	20	2850	453	3773	173	3075	556	.622 5556	3 819	40		172 173 174
	30	3303	453	3600	173	3630	555	.622 1737	3 819	30		1 17 2 17 3 17 4
	40	3756	453	3428	172	4185	555	.621 7919	3 818	20		2 34 4 34 6 34 8
	50	4209	453	3255	173	4741	556	.621 4102	3 817	10		3 51 6 51 9 52 2
			453		173				3 816			4 68 8 69 2 69 6
53	0	0 356 4662		0.934 3082		0.381 5296		2 621 0286		0	7	
	10	5115	453	2909	173	5851	555	.620 6471	3 815	50		5 86 0 86 5 87 0
	20	5568	453	2736	173	6407	556	.620 2657	3 814	40		6 103 2 103 8 104 2
	30	6021	453	2563	173	6962	555	.619 8844	3 813	30		7 120 4 121 1 121 8
	40	6474	453	2391	172	7518	556	.619 5032	3 812	20		8 137 6 138 4 139 2
	50	6927	453	2218	173	8073	555	.619 1221	3 811	10		9 154 8 155 7 156 6
			453		173				3 810			
54	0	0.356 7380		0.934 2045		0.381 8629		2 618 7411		0	6	
	10	7833	453	1872	173	9184	555	.618 3602	3 809	50		Tangent
	20	8286	453	1699	173	9740	556	.617 9794	3 808	40		555 556 557
	30	8739	453	1526	173	0 382 0295	555	.617 5987	3 807	30		1 55 5 55 6 55 7
	40	9192	452	1353	173	0851	556	.617 2181	3 806	20		2 111 0 111 2 111 4
	50	9644	453	1180	173	1406	555	.616 8376	3 805	10		3 166 5 166 8 167 1
			453		173				3 805			4 222 0 222 4 222 8
55	0	0.357 0097		0.934 1007		0.382 1962		2.616 4571		0	5	
	10	0550	453	0834	173	2518	556	.616 0768	3 803	50		5 277 5 278 0 278 5
	20	1003	453	0660	174	3073	555	.615 6966	3 802	40		6 333 0 333 6 334 2
	30	1456	453	0487	173	3629	556	.615 3164	3 802	30		7 388 5 389 2 389 9
	40	1909	453	0314	173	4185	555	.614 9364	3 800	20		8 444 0 444 8 445 6
	50	2362	452	0141	173	4741	555	.614 5565	3 799	10		9 499 5 500 4 501 3
			452		173				3 799			
56	0	0.357 2814		0.933 9968		0.382 5296		2.614 1766		0	4	
	10	3267	453	9795	173	5852	556	.613 7969	3 797	50		Cotangent
	20	3720	453	9621	174	6408	556	.613 4172	3 797	40		3830 3810
	30	4173	453	9448	173	6964	556	.613 0376	3 796	30		1 383 0 381 0
	40	4626	453	9275	173	7519	555	.612 6582	3 794	20		2 766 0 762 0
	50	5078	452	9101	174	8075	556	.612 2788	3 794	10		3 1149 0 1143 0
			453		173				3 793			4 1532 0 1524 0
57	0	0 357 5531		0.933 8928		0.382 8631		2 611 8995		0	3	
	10	5984	453	8755	173	9187	556	.611 5204	3 791	50		5 1915 0 1905 0
	20	6437	453	8581	174	9743	556	.611 1413	3 790	40		6 2298 0 2286 0
	30	6889	452	8408	173	0 383 0299	556	.610 7623	3 790	30		7 2681 0 2667 0
	40	7342	453	8234	174	0855	555	.610 3834	3 788	20		8 3064 0 3048 0
	50	7795	453	8061	173	1411	556	.610 0046	3 787	10		9 3447 0 3429 0
			453		173							
58	0	0.357 8248		0.933 7888		0.383 1967		2.609 6259		0	2	
	10	8700	452	7714	174	2523	556	.609 2473	3 786	50		3800 3790
	20	9153	453	7541	173	3079	556	.608 8688	3 785	40		1 380 0 379 0
	30	9606	453	7367	174	3635	556	.608 4904	3 784	30		2 760 0 758 0
	40	0.358 0058	452	7193	173	4191	556	.608 1121	3 783	20		3 1140 0 1137 0
	50	0511	453	7020	174	4747	556	.607 7339	3 781	10		4 1520 0 1516 0
			453		174							5 1900 0 1895 0
59	0	0.358 0964		0.933 6846		0.383 5303		2.607 3558		0	1	
	10	1416	452	6673	173	5859	556	.606 9778	3 780	50		6 2280 0 2274 0
	20	1869	453	6499	174	6416	557	.606 5998	3 780	40		7 2660 0 2653 0
	30	2322	453	6325	174	6972	556	.606 2220	3 778	30		8 3040 0 3032 0
	40	2774	452	6152	173	7528	556	.605 8443	3 777	20		9 3420 0 3411 0
	50	3227	453	5978	174	8084	556	.605 4666	3 775	10		3780 3770
			452		174							1 378 0 377 0
60	0	0.358 3679		0.933 5804		0.383 8640		2.605 0891		0	0	
												2 756 0 754 0
												3 1131 0 1131 0
												4 1512 0 1508 0
												5 1890 0 1885 0
												6 2268 0 2262 0
												7 2646 0 2639 0
												8 3024 0 3016 0
												9 3402 0 3393 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	"	Proportional Parts

69° 0'

21° 0'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
0	0	0.358 3679		0.933 5804		0.383 8640		2.605 0891		0	60	
	10	4132	453	5631	173	9197	557	.604 7116	3 775	50		Sine
	20	4585	453	5457	174	9753	556	.604 3343	3 773	40		452 453
	30	5037	452	5283	174	0.384 0309	556	.603 9570	3 773	30		1 45 2 45 2
	40	5490	453	5109	174	0866	557	.603 5798	3 772	20		2 90 4 90 6
	50	5942	452	4935	174	1422	556	.603 2028	3 770	10		3 135 6 135 9
			453		174		556		3 770			4 180 8 181 2
1	0	0.358 6395		0.933 4761		0.384 1978		2.602 8258		0	59	
	10	6848	453	4588	173	2535	557	.602 4489	3 769	50		5 226 0 226 5
	20	7300	452	4414	174	3091	556	.602 0721	3 768	40		6 271 2 271 8
	30	7753	453	4240	174	3647	556	.601 6954	3 767	30		7 316 4 317 1
	40	8205	452	4066	174	4204	557	.601 3188	3 766	20		8 361 6 362 4
	50	8658	453	3892	174	4760	556	.600 9423	3 765	10		9 406 8 407 7
			452		174		557		3 764			
2	0	0.358 9110		0.933 3718		0.384 5317		2.600 6659		0	58	
	10	9563	453	3544	174	5873	556	.600 1896	3 763	50		Cosine
	20	0.359 0015	452	3370	174	6430	557	.599 8134	3 762	40		173 174 175
	30	0468	453	3196	174	6986	556	.599 4373	3 761	30		1 17 3 17 4 17 5
	40	0920	452	3022	174	7543	557	.599 0613	3 760	20		2 34 6 34 8 35 0
	50	1373	453	2847	175	8100	557	.598 6853	3 760	10		3 51 9 52 2 52 5
			452		174		556		3 758			4 69 2 69 6 70 0
3	0	0.359 1825		0.933 2673		0.384 8656		2.598 3095		0	57	
	10	2278	453	2499	174	9213	557	.597 9337	3 758	50		5 86 5 87 0 87 5
	20	2730	452	2325	174	9770	557	.597 5581	3 756	40		6 103 8 104 4 105 0
	30	3183	453	2151	174	0.385 0326	556	.597 1825	3 756	30		7 121 1 121 8 122 5
	40	3635	452	1977	175	0883	557	.596 8071	3 754	20		8 138 4 139 2 140 0
	50	4087	453	1802	174	1440	557	.596 4317	3 754	10		9 155 7 156 6 157 5
			452		174		556		3 753			
4	0	0.359 4540		0.933 1628		0.385 1996		2.596 0564		0	56	
	10	4992	452	1454	174	2553	557	.595 6813	3 751	50		Tangent
	20	5445	453	1280	174	3110	557	.595 3062	3 751	40		556 557 558
	30	5897	452	1105	175	3667	557	.594 9312	3 750	30		1 55 6 55 7 55 8
	40	6349	453	0931	174	4224	557	.594 5563	3 749	20		2 111 2 111 4 111 6
	50	6802	452	0757	174	4780	556	.594 1815	3 748	10		3 166 8 167 1 167 4
			452		175		557		3 747			4 222 4 222 8 223 2
5	0	0.359 7254		0.933 0582		0.385 5337		2.593 8068		0	55	
	10	7706	452	0408	174	5894	557	.593 4322	3 746	50		5 278 0 278 5 279 0
	20	8159	453	0233	175	6451	557	.593 0577	3 745	40		6 313 6 334 2 334 8
	30	8611	452	0059	174	7008	557	.592 6833	3 744	30		7 389 2 389 9 390 6
	40	9063	453	0.932 9884	175	7565	557	.592 3089	3 744	20		8 441 8 445 6 446 4
	50	9516	452	9710	174	8122	557	.591 9347	3 742	10		9 500 4 501 3 502 2
			452		175		557		3 741			
6	0	0.359 9968		0.932 9535		0.385 8679		2.591 5606		0	54	
	10	0.360 0420	452	9361	174	9236	557	.591 1865	3 741	50		Cotangent
	20	0873	453	9186	175	9793	557	.590 8126	3 739	40		3770 3760
	30	1325	452	9012	174	0.386 0350	557	.590 4387	3 739	30		1 377 0 376 0
	40	1777	453	8837	175	0907	557	.590 0650	3 737	20		2 754 0 752 0
	50	2230	452	8662	174	1464	557	.589 6913	3 737	10		3 1181 0 1128 0
			452		174		557		3 736			4 1508 0 1504 0
7	0	0.360 2682		0.932 8488		0.386 2021		2.589 3177		0	53	
	10	3134	452	8313	175	2578	557	.588 9442	3 735	50		5 1885 0 1880 0
	20	3586	453	8138	175	3136	558	.588 5708	3 734	40		6 2262 0 2256 0
	30	4039	453	7964	174	3693	557	.588 1976	3 732	30		7 2649 0 2632 0
	40	4491	452	7789	175	4250	557	.587 8244	3 732	20		8 3016 0 3008 0
	50	4943	452	7614	175	4807	557	.587 4512	3 730	10		9 3393 0 3384 0
			452		175		557					
8	0	0.360 5395		0.932 7439		0.386 5364		2.587 0782		0	52	
	10	5847	452	7265	174	5922	558	.586 7053	3 729	50		3750 3740
	20	6300	453	7090	175	6479	557	.586 3325	3 728	40		1 375 0 374 0
	30	6752	452	6915	175	7036	557	.585 9598	3 727	30		2 750 0 748 0
	40	7204	452	6740	175	7594	558	.585 5871	3 727	20		3 1125 0 1122 0
	50	7656	452	6565	175	8151	557	.585 2146	3 725	10		4 1500 0 1496 0
			452		175		557		3 725			5 1875 0 1870 0
9	0	0.360 8108		0.932 6390		0.386 8708		2.584 8421		0	51	
	10	8560	452	6215	175	9266	558	.584 4698	3 723	50		6 2250 0 2244 0
	20	9013	453	6040	175	9823	557	.584 0975	3 723	40		7 2625 0 2618 0
	30	9465	452	5865	175	0.387 0380	557	.583 7253	3 722	30		8 3000 0 2992 0
	40	9917	452	5690	175	0938	558	.583 3532	3 721	20		9 3375 0 3366 0
	50	0.361 0369	452	5515	175	1495	557	.582 9813	3 719	10		
			452		175		558		3 719			
10	0	0.361 0821		0.932 5340		0.387 2053		2.582 6094		0	50	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

68° 50'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff.			Proportional Parts
10	0	0.361 0821		0.932 5340		0.387 2053		2.582 6094		0	50	
	10	1273	452	5165	175	2610	557	.582 2376	3 718	50		Sine
	20	1725	452	4990	175	3168	558	.581 8659	3 717	40		451 452 453
	30	2177	452	4815	175	3725	557	.581 4943	3 716	30		1 45 1 45 2 45 3
	40	2629	452	4640	175	4283	558	.581 1227	3 716	20		2 90 2 90 4 90 6
	50	3081	452	4465	175	4841	558	.580 7513	3 714	10		3 135 3 135 6 135 9
			453		175		557		3 713			4 180 4 180 8 181 2
11	0	0.361 3534		0.932 4290		0.387 5398		2.580 3800		0	49	
	10	3986	452	4114	176	5956	558	.580 0087	3 713	50		5 225 5 226 0 226 5
	20	4438	452	3939	175	6514	558	.579 6376	3 711	40		6 270 6 271 2 271 8
	30	4890	452	3764	175	7071	557	.579 2665	3 711	30		7 315 7 316 4 317 1
	40	5342	452	3589	176	7629	558	.578 8956	3 709	20		8 360 8 361 6 362 4
	50	5794	452	3413	175	8187	557	.578 5247	3 709	10		9 405 9 406 8 407 7
			452		175		557		3 708			
12	0	0.361 6246		0.932 3238		0.387 8744		2.578 1539		0	48	
	10	6698	452	3063	175	9302	558	.577 7832	3 707	50		Cosine
	20	7150	452	2887	176	9860	558	.577 4126	3 706	40		175 176 177
	30	7602	452	2712	175	0.388 0418	558	.577 0421	3 705	30		1 17 5 17 6 17 7
	40	8054	452	2537	175	0976	558	.576 6717	3 704	20		2 35 0 35 2 35 4
	50	8506	452	2361	176	1533	557	.576 3014	3 703	10		3 52 5 52 8 53 1
			452		175		558		3 702			4 70 0 70 4 70 8
13	0	0.361 8958		0.932 2186		0.388 2091		2.575 9312		0	47	
	10	9410	451	2010	176	2649	558	.575 5611	3 701	50		5 87 5 88 0 88 5
	20	9861	452	1835	176	3207	558	.575 1910	3 701	40		6 105 0 105 6 106 2
	30	0.362 0313	452	1659	175	3765	558	.574 8211	3 699	30		7 122 5 123 2 123 9
	40	0765	452	1484	176	4323	558	.574 4512	3 699	20		8 140 0 140 8 141 6
	50	1217	452	1308	175	4881	558	.574 0815	3 697	10		9 157 5 158 4 159 3
			452		175		558		3 697			
14	0	0.362 1669		0.932 1133		0.388 5439		2.573 7118		0	46	
	10	2121	452	0957	176	5997	558	.573 3422	3 696	50		Tangent
	20	2573	452	0781	175	6555	558	.572 9727	3 695	40		557 558 559
	30	3025	452	0606	176	7113	558	.572 6034	3 693	30		1 55 7 55 8 55 9
	40	3477	452	0430	176	7671	558	.572 2341	3 693	20		2 111 4 111 6 111 8
	50	3929	451	0254	175	8229	558	.571 8648	3 693	10		3 222 8 223 2 223 6
			451		175		558		3 691			4 278 5 279 0 279 5
15	0	0.362 4380		0.932 0079		0.388 8787		2.571 4957		0	45	
	10	4832	452	0.931 9903	176	9345	558	.571 1267	3 690	50		5 324 2 324 8 325 4
	20	5284	452	9727	176	9904	559	.570 7578	3 689	40		6 380 9 380 6 391 3
	30	5736	452	9551	176	0.389 0462	558	.570 3889	3 689	30		7 445 6 446 4 447 2
	40	6188	452	9376	175	1020	558	.570 0202	3 687	20		8 501 3 502 2 503 1
	50	6640	451	9200	176	1578	558	.569 6515	3 687	10		
			451		176		558		3 685			Cotangent
16	0	0.362 7091		0.931 9024		0.389 2136		2.569 2830		0	44	
	10	7543	452	8848	176	2695	559	.568 9145	3 685	50		3720 3710
	20	7995	452	8672	176	3253	558	.568 5461	3 685	40		1 372 0 371 0
	30	8447	451	8496	176	3811	559	.568 1778	3 684	30		2 744 0 742 0
	40	8898	452	8320	175	4370	558	.567 8096	3 683	20		3 1116 0 1113 0
	50	9350	452	8145	176	4928	558	.567 4415	3 682	10		4 1488 0 1484 0
			452		176		558		3 681			5 1850 0 1855 0
17	0	0.362 9802		0.931 7969		0.389 5486		2.567 0735		0	43	
	10	0.363 0254	452	7793	176	6045	559	.566 7056	3 679	50		6 2212 0 2226 0
	20	0705	451	7617	176	6603	558	.566 3378	3 678	40		7 2604 0 2597 0
	30	1157	452	7441	177	7162	558	.565 9700	3 678	30		8 2976 0 2968 0
	40	1609	452	7264	176	7720	559	.565 6024	3 676	20		9 3348 0 3339 0
	50	2061	451	7088	176	8279	558	.565 2348	3 674	10		
			451		176		558		3 674			5 1850 0 1845 0
18	0	0.363 2512		0.931 6912		0.389 8837		2.564 8674		0	42	
	10	2964	452	6736	176	9396	559	.564 5000	3 674	50		6 2220 0 2214 0
	20	3416	451	6560	176	9954	558	.564 1327	3 673	40		7 2590 0 2583 0
	30	3867	452	6384	176	0.390 0513	558	.563 7655	3 672	30		8 2960 0 2952 0
	40	4319	452	6208	177	1071	559	.563 3984	3 671	20		9 3330 0 3321 0
	50	4771	451	6031	176	1630	559	.563 0314	3 670	10		
			451		176		559		3 669			3680 3670
19	0	0.363 5222		0.931 5855		0.390 2189		2.562 6645		0	41	
	10	5674	452	5679	176	2747	559	.562 2977	3 668	50		1 370 0 369 0
	20	6126	451	5503	176	3306	559	.561 9309	3 668	40		2 736 0 734 0
	30	6577	452	5326	177	3865	559	.561 5643	3 666	30		3 1104 0 1101 0
	40	7029	452	5150	176	4423	558	.561 1977	3 666	20		4 1472 0 1468 0
	50	7480	451	4974	177	4982	559	.560 8313	3 664	10		5 1810 0 1835 0
			452		177		559		3 664			6 2208 0 2202 0
20	0	0.363 7932		0.931 4797		0.390 5541		2.560 4649		0	40	
												7 2576 0 2569 0
												8 2944 0 2936 0
												9 3312 0 3303 0

68° 40'

68° 30'

21° 30'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
30	0	0.366 5012		0.930 4176		0.393 9105		2.538 6479		0	30	
	10	5463	451	3998	178	9665	560	.538 2870	3 609	50		
	20	5914	451	3820	178	0.394 0225	560	.537 9262	3 608	40		
	30	6365	451	3643	177	0785	560	.537 5655	3 607	30		
	40	6817	452	3465	178	1345	560	.537 2049	3 606	20		
	50	7268	451	3287	178	1905	560	.536 8444	3 605	10		
31	0	0.366 7719		0.930 3109		0.394 2465		2.536 4839		0	29	
	10	8170	451	2931	178	3026	561	.536 1236	3 603	50		
	20	8621	451	2754	177	3586	560	.535 7633	3 603	40		
	30	9072	451	2576	178	4146	560	.535 4031	3 602	30		
	40	9523	451	2398	178	4706	560	.535 0430	3 601	20		
	50	9974	451	2220	178	5266	560	.534 6830	3 600	10		
32	0	0.367 0425		0.930 2042		0.394 5827		2.534 3231		0	28	
	10	0876	451	1864	178	6387	560	.533 9633	3 598	50		
	20	1327	450	1686	178	6947	561	.533 6036	3 597	40		
	30	1777	451	1508	178	7508	560	.533 2439	3 597	30		
	40	2228	451	1330	178	8068	561	.532 8844	3 595	20		
	50	2679	451	1152	178	8629	560	.532 5249	3 595	10		
33	0	0.367 3130		0.930 0974		0.394 9189		2.532 1655		0	27	
	10	3581	451	0796	178	9749	560	.531 8062	3 593	50		
	20	4032	451	0618	178	0.395 0310	561	.531 4470	3 592	40		
	30	4483	451	0439	179	0870	560	.531 0879	3 591	30		
	40	4934	451	0261	178	1431	561	.530 7289	3 590	20		
	50	5385	451	0083	178	1991	560	.530 3699	3 590	10		
34	0	0.367 5836		0.929 9905		0.395 2552		2.530 0111		0	26	
	10	6287	451	9727	178	3112	560	.529 6523	3 588	50		
	20	6737	450	9548	179	3673	561	.529 2936	3 587	40		
	30	7188	451	9370	178	4234	561	.528 9350	3 586	30		
	40	7639	451	9192	178	4794	560	.528 5765	3 585	20		
	50	8090	451	9014	179	5355	561	.528 2181	3 584	10		
35	0	0.367 8641		0.929 8835		0.395 5916		2.527 8598		0	25	
	10	8992	451	8657	178	6476	560	.527 5016	3 582	50		
	20	9442	450	8479	178	7037	561	.527 1434	3 582	40		
	30	9893	451	8300	179	7598	561	.526 7853	3 581	30		
	40	0 368 0344	451	8122	179	8159	560	.526 4274	3 579	20		
	50	0795	451	7943	178	8719	561	.526 0695	3 578	10		
36	0	0.368 1246		0.929 7765		0.395 9280		2.525 7117		0	24	
	10	1696	450	7586	179	9841	561	.525 3540	3 577	50		
	20	2147	451	7408	178	0.396 0402	561	.524 9964	3 576	40		
	30	2598	451	7229	179	0963	561	.524 6388	3 576	30		
	40	3049	451	7051	178	1524	561	.524 2814	3 574	20		
	50	3499	450	6872	179	2084	560	.523 9240	3 574	10		
37	0	0.368 3950		0.929 6694		0.396 2645		2.523 5667		0	23	
	10	4401	451	6515	179	3206	561	.523 2096	3 571	50		
	20	4851	450	6336	179	3767	561	.522 8525	3 571	40		
	30	5302	451	6158	178	4328	561	.522 4954	3 571	30		
	40	5753	451	5979	179	4889	561	.522 1385	3 569	20		
	50	6203	450	5800	179	5450	561	.521 7817	3 568	10		
38	0	0.368 6654		0.929 5622		0.396 6011		2.521 4249		0	22	
	10	7105	451	5443	179	6572	561	.521 0683	3 566	50		
	20	7555	450	5264	179	7134	562	.520 7117	3 566	40		
	30	8006	450	5085	179	7695	561	.520 3552	3 565	30		
	40	8457	450	4907	178	8256	561	.519 9988	3 564	20		
	50	8907	451	4728	179	8817	561	.519 6425	3 563	10		
39	0	0.368 9368		0.929 4549		0.396 9378		2.519 2863		0	21	
	10	9809	451	4370	179	9939	561	.518 9301	3 562	50		
	20	0.369 0259	450	4191	179	0.397 0501	562	.518 5741	3 560	40		
	30	0710	451	4012	179	1062	561	.518 2181	3 560	30		
	40	1160	450	3833	179	1623	561	.517 8622	3 559	20		
	50	1611	451	3654	179	2184	562	.517 5064	3 558	10		
40	0	0.369 2061		0.929 3475		0.397 2746		2.517 1507		0	20	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	"	Proportional Parts

68° 20'

21° 40'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
40	0	0.369 2061		0.929 3475		0.397 2746		2.517 1607		0	20	Sine
	10	2512	451	3296	179	3307	561	.516 7951	3 556	50		450 451
	20	2963	451	3117	179	3868	561	.516 4396	3 555	40		1 45 0 45 1
	30	3413	450	2938	179	4430	562	.516 0841	3 555	30		2 90 0 90 2
	40	3864	451	2759	179	4991	561	.515 7288	3 553	20		3 135 0 135 3
	50	4314	450	2580	179	5553	562	.515 3735	3 553	10		4 180 0 180 4
			451		179		561		3 552			5 225 0 225 5
41	0	0.369 4765		0.929 2401		0.397 6114		2.515 0183		0	19	6 270 0 270 6
	10	5215	450	2222	179	6676	562	.514 6632	3 551	50		7 315 0 315 7
	20	5666	451	2043	179	7237	561	.514 3082	3 550	40		8 360 0 360 8
	30	6116	450	1863	180	7799	562	.513 9533	3 549	30		9 405 0 405 9
	40	6567	451	1684	179	8360	561	.513 5985	3 548	20		
	50	7017	450	1505	179	8922	562	.513 2437	3 548	10		
			451		179		561		3 547			
42	0	0.369 7468		0.929 1326		0.397 9483		2.512 8890		0	18	Cosine
	10	7918	450	1146	180	0.398 0045	562	.512 5345	3 545	50		179 180 181
	20	8368	450	0967	179	0607	562	.512 1800	3 545	40		1 17 9 18 0 18 1
	30	8819	451	0788	179	1168	561	.511 8256	3 544	30		2 35 8 36 0 36 2
	40	9269	450	0609	179	1730	562	.511 4712	3 544	20		3 53 7 54 0 54 3
	50	9720	451	0429	180	2292	562	.511 1170	3 542	10		4 71 6 72 0 72 4
			450		179		561		3 541			5 89 5 90 0 90 5
43	0	0.370 0170		0.929 0260		0.398 2853		2.510 7629		0	17	6 107 4 108 0 108 6
	10	0621	451	0070	180	3415	562	.510 4088	3 541	50		7 125 3 126 0 126 7
	20	1071	450		179	3977	562	.510 0548	3 540	40		8 143 2 144 0 144 8
	30	1521	450	9712	179	4539	561	.509 7009	3 539	30		9 161 1 162 0 162 9
	40	1972	451	9532	180	5100	562	.509 3471	3 538	20		
	50	2422	450	9353	179	5662	562	.508 9934	3 537	10		
			450		180		562		3 536			
44	0	0.370 2872		0.928 9173		0.398 6224		2.508 6398		0	16	Tangent
	10	3323	451	8994	179	6786	562	.508 2862	3 536	50		561 562 563
	20	3773	450	8814	180	7348	562	.507 9328	3 534	40		1 56 1 56 2 56 3
	30	4223	450	8634	180	7910	562	.507 5794	3 534	30		2 112 2 112 4 112 6
	40	4674	451	8455	179	8472	562	.507 2261	3 533	20		3 168 3 168 6 168 9
	50	5124	450	8275	180	9033	562	.506 8729	3 532	10		4 224 4 224 8 225 2
			450		179		561		3 532			5 280 5 281 0 281 5
45	0	0.370 5674		0.928 8096		0.398 9595		2.506 5198		0	15	6 336 6 337 2 337 8
	10	6025	451	7916	180	0.399 0157	562	.506 1668	3 530	50		7 392 7 393 4 394 1
	20	6475	450	7736	180	0719	562	.505 8138	3 530	40		8 448 8 449 6 450 4
	30	6925	450	7556	180	1282	563	.505 4610	3 528	30		9 504 9 505 8 506 7
	40	7376	451	7377	179	1844	562	.505 1082	3 528	20		
	50	7826	450	7197	180	2406	562	.504 7555	3 527	10		
			450		180		562		3 526			
46	0	0.370 8276		0.928 7017		0.399 2968		2.504 4029		0	14	Cotangent
	10	8726	450	6837	180	3530	562	.504 0504	3 525	50		3550 3540
	20	9176	450	6658	179	4092	562	.503 6980	3 524	40		1 355 0 354 0
	30	9627	451	6478	180	4654	562	.503 3456	3 524	30		2 710 0 708 0
	40	0.371 0077	450	6298	180	5216	562	.502 9934	3 522	20		3 1065 0 1062 0
	50	0527	450	6118	180	5779	563	.502 6412	3 522	10		4 1420 0 1416 0
			450		180		562		3 521			5 1775 0 1770 0
47	0	0.371 0977		0.928 5938		0.399 6341		2.502 2891		0	13	6 2130 0 2124 0
	10	1428	451	5758	180	6903	562	.501 9371	3 520	50		7 2485 0 2478 0
	20	1878	450	5578	180	7465	563	.501 5852	3 519	40		8 2840 0 2832 0
	30	2328	450	5398	180	8028	562	.501 2333	3 517	30		9 3195 0 3186 0
	40	2778	450	5218	180	8590	562	.500 8816	3 517	20		
	50	3228	450	5038	180	9152	562	.500 5299	3 517	10		
			450		180		563		3 515			
48	0	0.371 3678		0.928 4858		0.399 9715		2.500 1784		0	12	
	10	4128	450	4678	180	0.400 0277	562	.499 8269	3 515	50		
	20	4579	451	4498	180	0839	562	.499 4755	3 514	40		
	30	5029	450	4318	180	1402	563	.499 1241	3 514	30		
	40	5479	450	4138	180	1964	562	.498 7729	3 512	20		
	50	5929	450	3958	180	2527	563	.498 4218	3 511	10		
			450		180		562		3 511			
49	0	0.371 6379		0.928 3778		0.400 3089		2.498 0707		0	11	
	10	6829	450	3597	181	3652	563	.497 7197	3 510	50		
	20	7279	450	3417	180	4214	562	.497 3688	3 509	40		
	30	7729	450	3237	180	4777	563	.497 0180	3 508	30		
	40	8179	450	3057	180	5339	562	.496 6673	3 507	20		
	50	8629	450	2876	181	5902	563	.496 3166	3 507	10		
			450		180		563		3 505			
50	0	0.371 9079		0.928 2696		0.400 6465		2.495 9661		0	10	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

68° 10'

21° 50'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff.			Proportional Parts
50	0	0.371 9079		0.928 2696		0.400 6465		2.495 9661	3 505	0	10	
	10	9529	450	2516	180	7027	562	.495 6156	3 504	50		Sine
	20	9979	450	2336	180	7590	563	.495 2652	3 503	40		449 450 451
	30	0.372 0430	451	2155	181	8153	563	.494 9149	3 503	30		1 44 9 45 0 45 1
	40	0880	450	1975	180	8715	562	.494 5647	3 502	20		2 89 8 90 0 90 2
	50	1330	450	1794	181	9278	563	.494 2146	3 501	10		3 134 7 135 0 135 3
			450		180		563		3 501			4 179 6 180 0 180 4
51	0	0.372 1780		0.928 1614		0.400 9841		2.493 8645	3 499	0	9	
	10	2229	449	1433	181	0.401 0404	563	.493 5146	3 499	50		5 224 5 225 0 225 5
	20	2679	450	1253	180	0966	562	.493 1647	3 498	40		6 269 4 270 0 270 6
	30	3129	450	1073	180	1529	563	.492 8149	3 498	30		7 314 3 315 0 315 7
	40	3579	450	0892	181	2092	563	.492 4652	3 497	20		8 359 2 360 0 360 8
	50	4029	450	0711	180	2655	563	.492 1156	3 496	10		9 404 1 405 0 405 9
			450		180		563		3 496			
52	0	0.372 4479		0.928 0531		0.401 3218		2.491 7660	3 494	0	8	
	10	4929	450	0350	181	3781	563	.491 4166	3 494	50		Cosine
	20	5379	450	0170	180	4344	563	.491 0672	3 494	40		180 181 182
	30	5829	450	0 927 9989	181	4907	563	.490 7179	3 493	30		1 18 0 18 1 18 2
	40	6279	450	9808	181	5470	563	.490 3687	3 492	20		2 36 0 36 2 36 4
	50	6729	450	9628	180	6033	563	.490 0196	3 491	10		3 54 0 54 3 54 6
			450		181		563		3 490			4 72 0 72 4 72 8
53	0	0.372 7179		0.927 9447		0.401 6596		2.489 6706	3 490	0	7	
	10	7629	450	9266	181	7159	563	.489 3216	3 490	50		5 90 0 90 5 91 0
	20	8078	449	9086	180	7722	563	.488 9728	3 488	40		6 108 0 108 6 109 2
	30	8528	450	8905	181	8285	563	.488 6240	3 488	30		7 126 0 126 7 127 4
	40	8978	450	8724	181	8848	563	.488 2753	3 487	20		8 144 0 144 8 145 6
	50	9428	450	8543	181	9411	563	.487 9267	3 486	10		9 162 0 162 9 163 8
			450		180		563		3 486			
54	0	0.372 9878		0.927 8363		0.401 9974		2.487 5781	3 484	0	6	
	10	0.373 0328	450	8182	181	0.402 0537	563	.487 2297	3 484	50		Tangent
	20	0777	449	8001	181	1101	564	.486 8813	3 484	40		562 563 564
	30	1227	450	7820	181	1664	563	.486 5331	3 482	30		1 56 2 56 3 56 4
	40	1677	450	7639	181	2227	563	.486 1849	3 482	20		2 112 4 112 6 112 8
	50	2127	450	7458	181	2790	563	.485 8368	3 481	10		3 168 6 168 9 169 2
			450		181		564		3 481			4 234 8 235 2 235 6
55	0	0.373 2577		0.927 7277		0.402 3354		2.485 4887	3 479	0	5	
	10	3026	449	7096	181	3917	563	.485 1408	3 479	50		5 281 0 281 5 282 0
	20	3476	450	6915	181	4480	563	.484 7929	3 479	40		6 337 2 337 8 338 4
	30	3926	450	6734	181	5044	564	.484 4452	3 477	30		7 393 4 394 1 394 8
	40	4376	449	6553	181	5607	563	.484 0975	3 476	20		8 449 6 450 4 451 2
	50	4825	450	6372	181	6170	564	.483 7499	3 476	10		9 505 8 506 7 507 6
			450		181		564		3 476			
56	0	0.373 5275		0.927 6191		0.402 6734		2.483 4023	3 474	0	4	
	10	5725	450	6010	181	7297	563	.483 0549	3 474	50		Cotangent
	20	6175	450	5829	181	7861	564	.482 7076	3 473	40		3510 3500
	30	6624	449	5648	182	8424	563	.482 3603	3 473	30		1 351 0 350 0
	40	7074	450	5466	181	8988	564	.482 0131	3 472	20		2 702 0 700 0
	50	7524	449	5285	181	9551	563	.481 6660	3 471	10		3 1053 0 1050 0
			450		181		564		3 470			4 1404 0 1400 0
57	0	0.373 7973		0.927 5104		0.403 0115		2.481 3190	3 470	0	3	
	10	8423	450	4923	181	0678	563	.480 9720	3 470	50		5 1755 0 1750 0
	20	8873	450	4742	181	1242	564	.480 6252	3 468	40		6 2106 0 2100 0
	30	9322	449	4560	182	1805	563	.480 2784	3 468	30		7 2457 0 2450 0
	40	9772	450	4379	181	2369	564	.479 9317	3 467	20		8 2808 0 2800 0
	50	0.374 0222	449	4198	182	2933	563	.479 5851	3 466	10		9 3159 0 3150 0
			450		182		563		3 465			
58	0	0.374 0671		0.927 4016		0.403 3496		2.479 2386	3 464	0	2	
	10	1121	450	3835	181	4060	564	.478 8922	3 464	50		3490 3480
	20	1570	449	3654	182	4624	564	.478 5458	3 464	40		1 349 0 348 0
	30	2020	450	3472	182	5188	564	.478 1995	3 463	30		2 698 0 696 0
	40	2470	450	3291	181	5751	563	.477 8534	3 461	20		3 1047 0 1044 0
	50	2919	449	3109	181	6315	564	.477 5073	3 461	10		4 1496 0 1492 0
			450		181		564		3 461			5 1745 0 1740 0
59	0	0.374 3369		0.927 2928		0.403 6879		2.477 1612	3 459	0	1	
	10	3818	449	2746	182	7443	564	.476 8153	3 459	50		6 2094 0 2088 0
	20	4268	450	2565	182	8007	563	.476 4694	3 457	40		7 2443 0 2436 0
	30	4717	449	2383	181	8570	564	.476 1237	3 457	30		8 2792 0 2784 0
	40	5167	450	2202	182	9134	564	.475 7780	3 456	20		9 3141 0 3132 0
	50	5616	449	2020	181	9698	564	.475 4324	3 455	10		3470 3460
			450		181		564		3 455			1 347 0 346 0
60	0	0.374 6066		0.927 1839		0.404 0262		2.475 0869	3 455	0	0	
												2 694 0 692 0
												3 1041 0 1038 0
												4 1388 0 1384 0
												5 1735 0 1730 0
												6 2082 0 2076 0
												7 2429 0 2422 0
												8 2776 0 2768 0
												9 3123 0 3114 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff.	Tangent	Diff.	"	'	Proportional Parts

68° 0'

22° 0'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
0	0	0.374 6066		0.927 1839		0.404 0262		2.475 0869		0	60	
	10	6515	449	1657	182	0826	564	474 7414	3 455	50		Sine
	20	6965	450	1475	182	1390	564	474 3961	3 453	40		449 450
	30	7414	449	1294	181	1954	564	474 0508	3 452	30		1 44 9 45 0
	40	7864	450	1112	182	2518	564	473 7056	3 451	20		2 89 8 90 0
	50	8313	449	0930	182	3082	564	473 3605	3 450	10		3 134 7 135 0
1	0	0.374 8763		0.927 0748		0.404 3646		2.473 0155		0	59	4 179 6 180 0
	10	9212	449	0567	181	4210	564	472 6705	3 450	50		5 224 5 225 0
	20	9662	450	0385	182	4775	565	472 3257	3 448	40		6 269 4 270 0
	30	0 375 0111	449	0203	182	5339	564	471 9809	3 448	30		7 314 3 315 0
	40	0561	450	0021	182	5903	564	471 6362	3 447	20		8 359 2 360 0
	50	1010	449	0.926 9839	181	6467	564	471 2916	3 446	10		9 404 1 405 0
2	0	0.375 1459		0.926 9658		0.404 7031		2.470 9470		0	58	Cosine
	10	1909	450	9476	182	7596	565	470 6026	3 444	50		181 182 183
	20	2358	449	9294	182	8160	564	470 2582	3 444	40		1 18 1 18 2 18 3
	30	2808	450	9112	182	8724	564	469 9140	3 442	30		2 36 2 36 4 36 6
	40	3257	449	8930	182	9288	564	469 5698	3 442	20		3 54 3 51 6 54 9
	50	3706	450	8748	182	9853	565	469 2256	3 440	10		4 72 4 72 8 73 2
3	0	0.375 4156		0.926 8566		0.405 0417		2.468 8816		0	57	5 90 5 91 0 91 5
	10	4605	449	8384	182	0981	564	468 5376	3 440	50		6 108 6 109 2 109 8
	20	5054	450	8202	182	1546	565	468 1938	3 438	40		7 126 7 127 4 128 1
	30	5504	449	8020	182	2110	564	467 8500	3 438	30		8 144 8 145 6 146 4
	40	5953	449	7838	182	2675	565	467 5063	3 437	20		9 162 9 163 8 164 7
	50	6402	450	7656	182	3239	564	467 1627	3 436	10		
4	0	0.375 6852		0.926 7474		0.405 3804		2.466 8191		0	56	Tangent
	10	7301	449	7291	183	4368	564	466 4757	3 434	50		564 565 566
	20	7750	449	7109	182	4933	565	466 1323	3 434	40		1 50 4 56 5 56 6
	30	8200	450	6927	182	5497	564	465 7890	3 433	30		2 112 8 113 0 113 2
	40	8649	449	6745	182	6062	565	465 4458	3 432	20		3 169 2 169 5 169 8
	50	9098	449	6563	182	6626	564	465 1026	3 432	10		4 225 6 226 0 226 4
5	0	0.375 9647		0.926 6380		0.405 7191		2.464 7596		0	55	5 282 0 282 5 283 0
	10	9997	450	6198	182	7755	564	464 4166	3 430	50		6 338 4 339 0 339 6
	20	0.376 0446	449	6016	182	8320	565	464 0737	3 429	40		7 394 8 395 5 396 2
	30	0895	449	5833	183	8885	565	463 7309	3 428	30		8 451 2 452 0 452 8
	40	1344	449	5651	182	9449	564	463 3882	3 426	20		9 507 6 508 5 509 4
	50	1793	450	5469	183	0 406 0014	565	463 0456	3 426	10		
6	0	0.376 2243		0.926 5286		0.406 0579		2.462 7030		0	54	Cotangent
	10	2692	449	5104	182	1144	565	462 3605	3 425	50		3450 3440
	20	3141	449	4921	183	1708	564	462 0182	3 423	40		1 345 0 344 0
	30	3590	449	4739	182	2273	565	461 6758	3 424	30		2 690 0 688 0
	40	4039	449	4557	183	2838	565	461 3336	3 422	20		3 1035 0 1032 0
	50	4488	450	4374	182	3403	565	460 9915	3 421	10		4 1380 0 1376 0
7	0	0.376 4938		0.926 4192		0.406 3968		2.460 6494		0	53	5 1725 0 1720 0
	10	5387	449	4009	183	4533	565	460 3074	3 420	50		6 2070 0 2064 0
	20	5836	449	3826	182	5098	565	459 9655	3 419	40		7 2415 0 2408 0
	30	6285	449	3644	183	5663	565	459 6237	3 418	30		8 2760 0 2752 0
	40	6734	449	3461	182	6228	565	459 2819	3 416	20		9 3105 0 3096 0
	50	7183	449	3279	183	6793	565	458 9403	3 416	10		
8	0	0.376 7632		0.926 3096		0.406 7358		2.458 5987		0	52	3430 3420
	10	8081	449	2913	183	7923	565	458 2572	3 415	50		1 343 0 342 0
	20	8530	449	2731	182	8488	565	457 9158	3 414	40		2 680 0 684 0
	30	8980	450	2548	183	9053	565	457 5745	3 413	30		3 1029 0 1026 0
	40	9429	449	2365	183	9618	565	457 2332	3 413	20		4 1372 0 1368 0
	50	9878	449	2182	182	0.407 0183	565	456 8920	3 410	10		5 1715 0 1710 0
9	0	0.377 0327		0.926 2000		0.407 0748		2.456 5510		0	51	6 2058 0 2052 0
	10	0776	449	1817	183	1313	565	456 2099	3 411	50		7 2401 0 2394 0
	20	1225	449	1634	183	1878	565	455 8690	3 409	40		8 2744 0 2736 0
	30	1674	449	1451	183	2444	566	455 5282	3 408	30		9 3087 0 3078 0
	40	2123	449	1268	183	3009	565	455 1874	3 408	20		
	50	2572	449	1085	183	3574	565	454 8467	3 407	10		3410 3400
10	0	0.377 3021		0.926 0902		0.407 4139		2.454 5061		0	50	1 341 0 340 0
												2 682 0 680 0
												3 1023 0 1020 0
												4 1364 0 1360 0
												5 1705 0 1700 0
												6 2046 0 2040 0
												7 2387 0 2380 0
												8 2728 0 2720 0
												9 3069 0 3060 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

67° 50'

22° 10'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
10	0	0.377 3021		0.926 0902		0.407 4139		2.454 5061		0	50	
	10	3470	449	0720	182	4705	566	.454 1656	3 405	50		
	20	3919	449	0537	183	5270	565	.453 8252	3 404	40		
	30	4368	449	0354	183	5835	565	.453 4848	3 404	30		
	40	4817	449	0171	183	6401	566	.453 1445	3 403	20		
	50	5266	448	0 925 9988	183	6966	565	.452 8043	3 401	10		
11	0	0.377 5714		0.925 9805		0.407 7531		2.452 4642		0	49	
	10	6163	449	9621	184	8097	566	.452 1242	3 400	50		
	20	6612	449	9438	183	8662	565	.451 7842	3 400	40		
	30	7061	449	9255	183	9228	566	.451 4443	3 399	30		
	40	7510	449	9072	183	9793	565	.451 1045	3 397	20		
	50	7959	449	8889	183	0.408 0359	565	.450 7648	3 396	10		
12	0	0.377 8408		0.925 8706		0.408 0924		2.450 4252		0	48	
	10	8857	449	8523	183	1400	566	.450 0856	3 396	50		
	20	9306	449	8339	184	2056	566	.449 7462	3 394	40		
	30	9754	448	8156	183	2621	565	.449 4068	3 394	30		
	40	0.378 0203	449	7973	183	3187	566	.449 0675	3 393	20		
	50	0652	449	7790	183	3752	565	.448 7282	3 393	10		
13	0	0.378 1101		0.925 7606		0.408 4318		2.448 3891		0	47	
	10	1550	449	7423	183	4884	566	.448 0500	3 391	50		
	20	1999	449	7240	183	5450	566	.447 7110	3 390	40		
	30	2447	449	7056	184	6015	565	.447 3721	3 389	30		
	40	2896	449	6873	183	6581	566	.447 0333	3 388	20		
	50	3345	449	6690	183	7147	566	.446 6946	3 387	10		
14	0	0.378 3794		0.925 6506		0.408 7713		2.446 3559		0	46	
	10	4242	448	6323	183	8279	566	.446 0173	3 386	50		
	20	4691	449	6139	184	8844	565	.445 6788	3 385	40		
	30	5140	449	5956	183	9410	566	.445 3404	3 384	30		
	40	5589	449	5772	184	9976	566	.445 0020	3 384	20		
	50	6037	448	5589	183	0.409 0542	566	.444 6638	3 382	10		
15	0	0.378 6486		0.925 5405		0.409 1108		2.444 3256		0	45	
	10	6935	449	5221	184	1674	566	.443 9875	3 381	50		
	20	7384	449	5038	183	2240	566	.443 6495	3 380	40		
	30	7832	448	4854	184	2806	566	.443 3115	3 380	30		
	40	8281	449	4671	183	3372	566	.442 9737	3 378	20		
	50	8730	448	4487	184	3938	566	.442 6359	3 378	10		
16	0	0.378 9178		0.925 4303		0.409 4504		2.442 2982		0	44	
	10	9627	449	4119	184	5070	566	.441 9605	3 377	50		
	20	0.379 0076	449	3936	183	5636	566	.441 6230	3 375	40		
	30	0524	448	3752	184	6203	567	.441 2855	3 375	30		
	40	0973	449	3568	184	6769	566	.440 9481	3 374	20		
	50	1421	448	3384	184	7335	566	.440 6108	3 373	10		
17	0	0.379 1870		0.925 3201		0.409 7901		2.440 2736		0	43	
	10	2319	449	3017	184	8467	566	.439 9365	3 371	50		
	20	2767	449	2833	184	9034	566	.439 5994	3 371	40		
	30	3216	449	2649	184	9600	566	.439 2624	3 370	30		
	40	3664	448	2465	184	0.410 0166	566	.438 9255	3 369	20		
	50	4113	449	2281	184	0733	567	.438 5887	3 368	10		
18	0	0.379 4562		0.925 2097		0.410 1299		2.438 2519		0	42	
	10	5010	448	1913	184	1865	566	.437 9153	3 366	50		
	20	5459	449	1729	184	2432	567	.437 5787	3 366	40		
	30	5907	449	1545	184	2998	566	.437 2422	3 365	30		
	40	6356	449	1361	184	3565	567	.436 9058	3 364	20		
	50	6804	448	1177	184	4131	566	.436 5694	3 364	10		
19	0	0.379 7253		0.925 0993		0.410 4697		2.436 2331		0	41	
	10	7701	448	0809	184	5264	567	.435 8969	3 362	50		
	20	8150	449	0625	184	5831	567	.435 5608	3 361	40		
	30	8598	448	0441	184	6397	566	.435 2248	3 360	30		
	40	9047	449	0256	185	6964	567	.434 8889	3 359	20		
	50	9495	448	0072	184	7530	566	.434 5530	3 359	10		
20	0	0.379 9944		0.924 9888		0.410 8097		2.434 2172		0	40	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

22° 20'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
20	0	0.379 9944		0.924 9888		0.410 8097		2.434 2172		0	40	Sine
	10	0.380 0392	448	9704	184	8664	567	.433 8815	3 357	50		447 448 449
	20	0840	448	9520	184	9230	566	.433 5458	3 355	40		1 44 7 44 8 44 9
	30	1289	449	9335	185	9797	567	.433 2103	3 355	30		2 89 4 89 6 89 8
	40	1737	448	9151	184	0.411 0364	567	.432 8748	3 355	20		3 134 1 134 4 134 7
	50	2186	448	8967	184	0930	566	.432 5394	3 354	10		4 178 8 179 2 179 6
21	0	0.380 2634		0.924 8782		0.411 1497		2.432 2041		0	39	Sine
	10	3083	449	8598	184	2064	567	.431 8689	3 352	50		5 223 5 224 0 224 5
	20	3531	448	8414	184	2631	567	.431 5337	3 352	40		6 268 2 268 8 269 4
	30	3979	449	8229	185	3197	566	.431 1986	3 351	30		7 312 9 313 6 314 3
	40	4428	449	8045	184	3764	567	.430 8636	3 350	20		8 357 6 358 4 359 2
	50	4876	448	7860	185	4331	567	.430 5287	3 349	10		9 402 3 403 2 404 1
22	0	0.380 5324		0.924 7676		0.411 4898		2.430 1938		0	38	Cosine
	10	5773	449	7491	185	5465	567	.429 8591	3 347	50		184 185 186
	20	6221	448	7307	184	6032	567	.429 5244	3 347	40		1 18 4 18 5 18 6
	30	6669	448	7122	185	6599	567	.429 1898	3 346	30		2 36 8 37 0 37 2
	40	7118	449	6938	184	7166	567	.428 8553	3 345	20		3 55 2 55 5 55 8
	50	7566	448	6753	185	7733	567	.428 5208	3 345	10		4 73 6 74 0 74 4
23	0	0.380 8014		0.924 6568		0.411 8300		2.428 1864		0	37	Sine
	10	8462	448	6384	184	8867	567	.427 8521	3 343	50		5 92 0 92 5 93 0
	20	8911	449	6199	185	9434	567	.427 5179	3 342	40		6 110 4 111 0 111 6
	30	9359	448	6014	185	0.412 0001	567	.427 1838	3 341	30		7 128 8 129 5 130 2
	40	9807	448	5830	184	0568	567	.426 8497	3 341	20		8 147 2 148 0 148 8
	50	0 381 0256	449	5645	185	1135	567	.426 5158	3 339	10		9 165 6 166 5 167 4
24	0	0.381 0704		0.924 5460		0.412 1703		2.426 1819		0	36	Tangent
	10	1152	448	5276	184	2270	567	.425 8480	3 339	50		566 567 568
	20	1600	448	5091	185	2837	567	.425 5143	3 337	40		1 56 6 56 7 56 8
	30	2048	448	4906	185	3404	567	.425 1806	3 337	30		2 113 2 113 4 113 6
	40	2497	449	4721	185	3971	567	.424 8470	3 336	20		3 169 8 170 1 170 4
	50	2945	448	4536	185	4539	568	.424 5135	3 335	10		4 226 4 226 8 227 2
25	0	0.381 3393		0.924 4351		0.412 5106		2.424 1801		0	35	Sine
	10	3841	448	4167	184	5673	567	.423 8468	3 333	50		5 283 0 283 5 284 0
	20	4289	448	3982	185	6241	568	.423 5135	3 333	40		6 339 6 340 2 340 8
	30	4737	448	3797	185	6808	567	.423 1803	3 332	30		7 396 2 396 6 397 6
	40	5186	448	3612	185	7375	568	.422 8472	3 331	20		8 452 8 453 6 454 4
	50	5634	448	3427	185	7943	567	.422 5141	3 331	10		9 509 4 510 3 511 2
26	0	0.381 6082		0.924 3242		0.412 8510		2.422 1812		0	34	Cotangent
	10	6530	448	3057	185	9078	568	.421 8483	3 329	50		3360 3350
	20	6978	448	2872	185	9645	567	.421 5155	3 328	40		1 336 0 335 0
	30	7426	448	2687	185	0.413 0213	568	.421 1828	3 327	30		2 672 0 670 0
	40	7874	448	2502	185	0780	567	.420 8501	3 327	20		3 1008 0 1005 0
	50	8322	448	2316	186	1348	568	.420 5176	3 325	10		4 1344 0 1340 0
27	0	0.381 8770		0.924 2131		0.413 1915		2.420 1851		0	33	Sine
	10	9219	449	1946	185	2483	568	.419 8527	3 324	50		5 1680 0 1675 0
	20	9667	448	1761	185	3051	568	.419 5203	3 324	40		6 2016 0 2010 0
	30	0.382 0115	448	1576	185	3618	567	.419 1881	3 322	30		7 2352 0 2345 0
	40	0563	448	1391	186	4186	568	.418 8559	3 321	20		8 2688 0 2680 0
	50	1011	448	1205	185	4754	567	.418 5238	3 320	10		9 3024 0 3015 0
28	0	0.382 1459		0.924 1020		0.413 5321		2.418 1918		0	32	Cotangent
	10	1907	448	0835	185	5889	568	.417 8598	3 320	50		3340 3330
	20	2355	448	0650	185	6457	568	.417 5280	3 318	40		1 334 0 333 0
	30	2803	448	0464	186	7025	568	.417 1962	3 322	30		2 668 0 666 0
	40	3251	448	0279	185	7592	567	.416 8645	3 322	20		3 1002 0 999 0
	50	3699	448	0094	186	8160	568	.416 5328	3 321	10		4 1336 0 1332 0
29	0	0.382 4147		0.923 9908		0.413 8728		2.416 2013		0	31	Sine
	10	4595	448	9723	185	9296	568	.415 8698	3 315	50		5 1670 0 1665 0
	20	5043	448	9537	186	9864	568	.415 5384	3 314	40		6 2004 0 1998 0
	30	5491	447	9352	186	0.414 0432	568	.415 2071	3 313	30		7 2338 0 2331 0
	40	5938	448	9166	185	1000	568	.414 8758	3 313	20		8 2672 0 2664 0
	50	6386	448	8981	186	1568	568	.414 5447	3 311	10		9 3006 0 2997 0
30	0	0.382 6834		0.923 8795		0.414 2136		2.414 2136		0	30	Cotangent
												3320 3310
												1 332 0 331 0
												2 664 0 662 0
												3 996 0 993 0
												4 1328 0 1324 0
												5 1660 0 1655 0
												6 1992 0 1986 0
												7 2324 0 2317 0
												8 2656 0 2648 0
												9 2988 0 2979 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff.	"	'	Proportional Parts

67° 30'

22° 30' -

"	'	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff.			Proportional Parts
30	0	0.382 6834		0.923 8795		0.414 2136		2.414 2136		0	30	
	10	7282	448	8610	185	2704	568	.413 8825	3 311	50		
	20	7730	448	8424	186	3272	568	.413 5516	3 309	40		Sine
	30	8178	448	8239	185	3840	568	.413 2208	3 308	30		447 448
	40	8626	448	8053	186	4408	568	.412 8900	3 307	20		1 44 7 44 8
	50	9074	448	7867	186	4976	568	.412 5593	3 307	10		2 80 4 89 6
			448		185		568		3 307			3 134 1 131 4
									3 307			4 178 8 179 2
31	0	0.382 9522		0.923 7682		0.414 5544		2.412 2286		0	29	
	10	9969	447	7496	186	6112	568	.411 8981	3 305	50		5 223 5 224 0
	20	0 383 0417	448	7310	185	6680	568	.411 5676	3 305	40		6 268 2 268 8
	30	0865	448	7125	186	7248	568	.411 2372	3 304	30		7 312 9 313 6
	40	1313	448	6939	186	7817	569	.410 9069	3 303	20		8 357 6 358 4
	50	1761	448	6753	186	8385	568	.410 5767	3 302	10		9 402 3 403 2
			448		186		568		3 302			
32	0	0 383 2209		0 923 6567		0.414 8953		2.410 2465		0	28	
	10	2656	447	6382	185	9521	568	.409 9164	3 301	50		Cosine
	20	3104	448	6196	186	0 415 0090	569	.409 5864	3 300	40		185 186 187
	30	3552	448	6010	186	0658	568	.409 2565	3 299	30		1 18 5 18 6 18 7
	40	4000	447	5824	186	1226	568	.408 9266	3 299	20		2 37 0 37 2 37 4
	50	4447	448	5638	186	1795	568	.408 5969	3 297	10		3 55 5 55 8 56 1
			448		186		568		3 297			4 74 0 74 4 74 8
33	0	0.383 4895		0 923 5452		0.415 2363		2.408 2672		0	27	
	10	5343	448	5266	186	2932	569	.407 9375	3 297	50		5 92 5 93 0 93 5
	20	5791	448	5080	186	3500	568	.407 6080	3 295	40		6 111 0 111 6 112 2
	30	6238	447	4894	186	4069	569	.407 2785	3 295	30		7 129 5 130 2 130 9
	40	6686	448	4708	186	4637	568	.406 9491	3 294	20		8 148 0 148 8 149 6
	50	7134	448	4522	186	5206	569	.406 6198	3 293	10		9 166 5 167 4 168 3
			448		186		568		3 292			
34	0	0.383 7582		0.923 4336		0.415 5774		2.406 2906		0	26	
	10	8029	447	4150	186	6343	569	.405 9614	3 292	50		Tangent
	20	8477	448	3964	186	6911	568	.405 6323	3 291	40		568 569 570
	30	8925	448	3778	186	7480	569	.405 3033	3 290	30		1 56 8 56 9 57 0
	40	9372	447	3592	186	8048	568	.404 9744	3 289	20		2 113 6 113 8 114 0
	50	9820	448	3406	186	8617	569	.404 6455	3 289	10		3 170 4 170 7 171 0
			448		186		569		3 287			4 227 2 227 6 228 0
35	0	0.384 0268		0.923 3220		0.415 9186		2.404 3168		0	25	
	10	0715	447	3033	187	9754	568	.403 9881	3 287	50		5 281 0 284 5 285 0
	20	1163	448	2847	186	0892	569	.403 6594	3 287	40		6 340 8 341 4 342 0
	30	1610	447	2661	186	0892	569	.403 3309	3 285	30		7 397 6 398 3 399 0
	40	2058	448	2475	186	1461	569	.403 0024	3 285	20		8 444 4 455 2 456 0
	50	2506	447	2288	187	2029	568	.402 6740	3 284	10		9 511 2 512 1 513 0
			447		186		569		3 283			
36	0	0.384 2953		0.923 2102		0.416 2598		2.402 3457		0	24	
	10	3401	448	1916	186	3167	569	.402 0175	3 282	50		Cotangent
	20	3848	447	1730	186	3736	569	.401 6893	3 282	40		3310 3300
	30	4296	447	1543	187	4305	569	.401 3612	3 281	30		1 331 0 330 0
	40	4743	448	1357	186	4874	569	.401 0332	3 280	20		2 662 0 660 0
	50	5191	448	1170	186	5443	569	.400 7053	3 279	10		3 993 0 990 0
			448		186		569		3 279			4 1324 0 1320 0
37	0	0.384 5639		0.923 0984		0.416 6012		2.400 3774		0	23	
	10	6086	447	0797	187	6581	569	.400 0496	3 278	50		5 1655 0 1650 0
	20	6534	448	0611	186	7150	569	.399 7219	3 277	40		6 1986 0 1980 0
	30	6981	447	0424	186	7719	569	.399 3943	3 276	30		7 2317 0 2310 0
	40	7429	448	0238	186	8288	569	.399 0667	3 275	20		8 2648 0 2640 0
	50	7876	448	0051	187	8857	569	.398 7392	3 274	10		9 2979 0 2970 0
			448		186		569		3 274			
38	0	0.384 8324		0.922 9865		0 416 9426		2.398 4118		0	22	
	10	8771	447	9678	187	9995	569	.398 0845	3 273	50		3290 3280
	20	9219	448	9492	186	0 417 0564	569	.397 7573	3 272	40		1 329 0 328 0
	30	9666	447	9305	187	1133	569	.397 4301	3 272	30		2 658 0 656 0
	40	0 385 0113	448	9118	186	1702	569	.397 1030	3 271	20		3 987 0 984 0
	50	0561	447	8932	187	2271	570	.396 7760	3 270	10		4 1316 0 1312 0
			447		187		570		3 270			5 1645 0 1640 0
39	0	0.385 1008		0.922 8745		0.417 2841		2.396 4490		0	21	
	10	1456	448	8558	187	3410	569	.396 1221	3 269	50		6 1974 0 1968 0
	20	1903	447	8372	186	3979	569	.395 7954	3 267	40		7 2303 0 2296 0
	30	2351	448	8185	187	4548	569	.395 4686	3 268	30		8 2632 0 2624 0
	40	2798	447	7998	187	5118	570	.395 1420	3 266	20		9 2961 0 2952 0
	50	3245	448	7811	187	5687	569	.394 8154	3 266	10		3270 3260
			448		187		570		3 265			1 327 0 326 0
40	0	0.385 3693		0.922 7624		0.417 6257		2.394 4889		0	20	
												2 654 0 652 0
												3 981 0 978 0
												4 1308 0 1304 0
												5 1635 0 1630 0
												6 1962 0 1956 0
												7 2289 0 2282 0
												8 2616 0 2608 0
												9 2943 0 2934 0
		Cosine	Diff.	Sine	Diff.	Cotangent	Diff.	Tangent	Diff.	"	'	Proportional Parts

67° 20'

22° 40'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
40	0	0.385 3693		0.922 7624		0.417 6257		2.394 4889		0	20	
	10	4140	447	7438	186	6826	569	394 1625	3 264	50		Sine
	20	4587	447	7251	187	7395	569	.393 8362	3 263	40		446 447 448
	30	5035	448	7064	187	7965	570	.393 5099	3 263	30		1 44 6 44 7 44 8
	40	5482	447	6877	187	8534	569	.393 1837	3 262	20		2 89 2 89 4 89 6
	50	5929	447	6690	187	9104	570	.392 8576	3 261	10		3 133 8 134 1 134 4
			448		187		569		3 260			4 178 4 178 8 179 2
41	0	0.385 6377		0.922 6503		0.417 9673		2.392 5316		0	19	
	10	6824	447	6316	187	0.418 0243	570	.392 2056	3 260	50		5 223 0 223 5 224 0
	20	7271	447	6129	187	0812	569	.391 8797	3 259	40		6 267 6 268 2 268 8
	30	7719	448	5942	187	1382	570	.391 5539	3 258	30		7 312 2 312 9 313 6
	40	8166	447	5755	187	1951	569	.391 2282	3 257	20		8 356 8 357 6 358 4
	50	8613	447	5568	187	2521	570	.390 9025	3 257	10		9 401 4 402 3 403 2
			447		187		570		3 256			
42	0	0.385 9060		0.922 5381		0.418 3091		2.390 5769		0	18	
	10	9508	448	5194	187	3660	569	.390 2514	3 255	50		Cosine
	20	9955	447	5007	187	4230	570	.389 9260	3 254	40		186 187 188
	30	0 386 0402	447	4820	188	4800	570	.389 6007	3 253	30		1 18 6 18 7 18 8
	40	0849	447	4632	188	5369	569	.389 2754	3 253	20		2 37 2 37 4 37 6
	50	1297	448	4445	187	5939	570	.388 9502	3 252	10		3 55 8 56 1 56 4
			447		187		570		3 252			4 74 4 74 8 75 2
43	0	0.386 1744		0.922 4268		0.418 6509		2.388 6260		0	17	
	10	2191	447	4071	187	7079	570	.388 3000	3 250	50		5 93 0 93 5 94 0
	20	2638	447	3883	188	7649	570	.387 9750	3 250	40		6 111 6 112 2 112 8
	30	3085	448	3696	187	8218	569	.387 6501	3 249	30		7 130 2 130 9 131 6
	40	3533	448	3509	187	8788	570	.387 3253	3 248	20		8 148 8 149 6 150 4
	50	3980	447	3322	187	9358	570	.387 0005	3 248	10		9 167 4 168 3 169 2
			447		188		570		3 247			
44	0	0.386 4427		0.922 3134		0.418 9928		2.386 6758		0	16	
	10	4874	447	2947	187	0.419 0498	570	.386 3512	3 246	50		Tangent
	20	5321	447	2759	188	1068	570	.386 0267	3 245	40		569 570 571
	30	5768	447	2572	187	1638	570	.385 7022	3 245	30		1 56 9 57 0 57 1
	40	6215	448	2385	187	2208	570	.385 3779	3 245	20		2 113 8 114 0 114 2
	50	6663	447	2197	188	2778	570	.385 0536	3 243	10		3 170 7 171 0 171 3
			447		187		570		3 243			4 227 6 228 0 228 4
45	0	0.386 7110		0.922 2010		0.419 3348		2.384 7293		0	15	
	10	7557	447	1822	188	3918	570	.384 4052	3 241	50		5 284 5 285 0 285 5
	20	8004	447	1635	187	4488	570	.384 0811	3 241	40		6 341 4 342 0 342 6
	30	8451	447	1447	188	5058	570	.383 7571	3 240	30		7 398 3 399 0 399 7
	40	8898	447	1260	188	5628	571	.383 4332	3 239	20		8 455 2 456 0 456 8
	50	9345	447	1072	188	6199	570	.383 1093	3 238	10		9 512 1 513 0 513 9
			447		188		570					
46	0	0 386 9792		0.922 0884		0.419 6769		2.382 7855		0	14	
	10	0.387 0239	447	0697	187	7339	570	.382 4618	3 237	50		Cotangent
	20	0686	447	0509	188	7909	570	.382 1382	3 236	40		3270 3260
	30	1133	447	0321	187	8480	571	.381 8146	3 236	30		1 327 0 326 0
	40	1580	447	0134	188	9050	570	.381 4912	3 234	20		2 654 0 652 0
	50	2027	447	0.921 9946	188	9620	570	.381 1677	3 233	10		3 981 0 978 0
			447		187		570		3 233			4 1308 0 1304 0
47	0	0 387 2474		0.921 9758		0.420 0190		2.380 8444		0	13	
	10	2921	447	9571	187	0761	571	.380 5212	3 232	50		5 1635 0 1630 0
	20	3368	447	9383	188	1331	570	.380 1980	3 232	40		6 1962 0 1966 0
	30	3815	447	9195	188	1902	571	.379 8749	3 231	30		7 2289 0 2282 0
	40	4262	447	9007	188	2472	570	.379 5518	3 231	20		8 2616 0 2608 0
	50	4709	447	8819	187	3042	570	.379 2289	3 229	10		9 2943 0 2934 0
			447		187		571		3 229			
48	0	0.387 5166		0.921 8632		0.420 3613		2.378 9060		0	12	
	10	5603	447	8444	188	4183	570	.378 5832	3 228	50		3250 3240
	20	6050	447	8256	188	4754	571	.378 2604	3 228	40		1 325 0 324 0
	30	6497	447	8068	188	5324	570	.377 9378	3 226	30		2 650 0 648 0
	40	6944	447	7880	188	5895	571	.377 6152	3 226	20		3 975 0 972 0
	50	7390	446	7692	188	6446	570	.377 2927	3 224	10		4 1300 0 1296 0
			447		188		570		3 224			5 1625 0 1620 0
49	0	0.387 7837		0.921 7504		0.420 7036		2.376 9703		0	11	
	10	8284	447	7316	188	7607	571	.376 6479	3 224	50		6 1950 0 1944 0
	20	8731	447	7128	188	8178	571	.376 3256	3 223	40		7 2275 0 2268 0
	30	9178	447	6940	188	8748	570	.376 0034	3 222	30		8 2600 0 2592 0
	40	9625	447	6752	188	9319	571	.375 6812	3 222	20		9 2925 0 2916 0
	50	0.388 0072	447	6564	188	9890	571	.375 3592	3 220	10		3230 3220
			446		189		570		3 220			1 323 0 322 0
50	0	0.388 0518		0.921 6375		0.421 0460		2.375 0372		0	10	
												2 646 0 644 0
												3 969 0 966 0
												4 1292 0 1288 0
												5 1615 0 1610 0
												6 1938 0 1932 0
												7 2261 0 2254 0
												8 2584 0 2576 0
												9 2907 0 2898 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

67° 10'

22° 50'

	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
50	0	0.388 0618		0.921 6375		0.421 0460		2.375 0372		0	10	
	10	0965	447	6187	188	1031	571	.374 7153	3 219	50		Sine
	20	1412	447	5999	188	1602	571	.374 3934	3 219	40		446 447
	30	1859	447	5811	188	2173	571	.374 0717	3 217	30		1 44 6 44 7
	40	2306	447	5623	188	2744	571	.373 7500	3 217	20		2 89 2 89 4
	50	2752	446	5435	188	3314	570	.373 4283	3 217	10		3 133 8 134 1
			447		189		571		3 215			4 178 4 178 8
51	0	0.388 3199		0.921 5246		0.421 3885		2.373 1068		0	9	5 223 0 223 5
	10	3646	447	5058	188	4456	571	.372 7853	3 215	50		6 267 6 268 2
	20	4093	447	4870	188	5027	571	.372 4639	3 214	40		7 312 2 312 9
	30	4539	446	4681	189	5598	571	.372 1426	3 213	30		8 356 8 357 6
	40	4986	447	4493	188	6169	571	.371 8213	3 213	20		9 401 4 402 3
	50	5433	447	4305	188	6740	571	.371 5002	3 211	10		
			447		189		571		3 211			
52	0	0.388 5880		0.921 4116		0.421 7311		2.371 1791		0	8	Cosine
	10	6326	446	3928	188	7882	571	.370 8580	3 211	50		188 189 190
	20	6773	447	3739	189	8453	571	.370 5371	3 209	40		1 18 8 18 9 19 0
	30	7220	447	3551	188	9024	571	.370 2162	3 209	30		2 37 6 37 8 38 0
	40	7666	446	3363	188	9596	572	.369 8954	3 208	20		3 56 4 56 7 57 0
	50	8113	447	3174	189	10167	571	.369 5746	3 208	10		4 75 2 75 6 76 0
			447		188		571		3 206			5 94 0 94 5 95 0
53	0	0.388 8560		0.921 2986		0.422 0738		2.369 2540		0	7	6 112 8 113 4 114 0
	10	9006	446	2797	189	1309	571	.368 9334	3 206	50		7 131 6 132 3 133 0
	20	9453	447	2608	189	1880	571	.368 6129	3 205	40		8 150 4 151 2 152 0
	30	9900	447	2420	188	2452	572	.368 2924	3 205	30		9 169 2 170 1 171 0
	40	0.389 0346	446	2231	189	3023	571	.367 9721	3 203	20		
	50	0793	447	2043	188	3594	571	.367 6518	3 203	10		
			447		189		571		3 202			
54	0	0.389 1240		0.921 1854		0.422 4165		2.367 3316		0	6	Tangent
	10	1686	446	1665	189	4737	572	.367 0114	3 202	50		570 571 572
	20	2133	447	1477	188	5308	571	.366 6913	3 201	40		1 57 0 57 1 57 2
	30	2579	446	1288	189	5879	571	.366 3713	3 200	30		2 114 0 114 2 114 4
	40	3026	447	1099	189	6451	572	.366 0514	3 199	20		3 171 0 171 3 171 6
	50	3472	446	0911	188	7022	571	.365 7316	3 198	10		4 228 0 228 4 228 8
			447		189		572		3 198			5 285 0 285 5 286 0
55	0	0.389 3919		0.921 0722		0.422 7594		2.365 4118		0	5	6 342 0 342 6 343 2
	10	4366	446	0533	189	8165	571	.365 0921	3 197	50		7 399 0 399 7 400 4
	20	4812	446	0344	189	8737	572	.364 7724	3 197	40		8 456 0 456 8 457 6
	30	5259	447	0155	189	9308	571	.364 4529	3 195	30		9 513 0 513 9 514 8
	40	5705	446	0.920 9966	189	9880	572	.364 1334	3 195	20		
	50	6152	447	9778	188	0.423 0451	571	.363 8140	3 194	10		
			446		189		572		3 194			
56	0	0.389 6598		0.920 9589		0.423 1023		2.363 4946		0	4	Cotangent
	10	7045	447	9400	189	1595	572	.363 1754	3 192	50		3220 3210
	20	7491	446	9211	189	2166	571	.362 8562	3 192	40		1 322 0 321 0
	30	7938	447	9022	189	2738	572	.362 5371	3 191	30		2 641 0 642 0
	40	8384	446	8833	189	3310	572	.362 2180	3 191	20		3 966 0 963 0
	50	8830	447	8644	189	3881	571	.361 8990	3 190	10		4 1288 0 1281 0
			447		189		572		3 189			5 1610 0 1605 0
57	0	0.389 9277		0.920 8455		0.423 4453		2.361 5801		0	3	6 1932 0 1926 0
	10	9723	446	8266	189	5025	572	.361 2613	3 188	50		7 2254 0 2247 0
	20	0.390 0170	446	8077	189	5597	571	.360 9425	3 188	40		8 2576 0 2568 0
	30	0616	446	7888	189	6168	572	.360 6239	3 186	30		9 2898 0 2880 0
	40	1063	447	7698	190	6740	572	.360 3053	3 186	20		
	50	1509	446	7509	189	7312	572	.359 9867	3 186	10		
			446		189		572		3 184			
58	0	0.390 1955		0.920 7320		0.423 7884		2.359 6683		0	2	3200 3190
	10	2402	447	7131	189	8456	572	.359 3499	3 184	50		1 320 0 319 0
	20	2848	446	6942	189	9028	572	.359 0315	3 184	40		2 640 0 638 0
	30	3294	446	6753	189	9600	572	.358 7133	3 182	30		3 960 0 957 0
	40	3741	447	6563	190	0.424 0172	572	.358 3951	3 182	20		4 1280 0 1276 0
	50	4187	446	6374	189	0744	572	.358 0770	3 181	10		5 1600 0 1595 0
			446		189		572		3 180			6 1920 0 1914 0
59	0	0.390 4633		0.920 6185		0.424 1316		2.357 7590		0	1	7 2240 0 2233 0
	10	5080	447	5995	190	1888	572	.357 4410	3 180	50		8 2560 0 2552 0
	20	5526	446	5806	189	2460	572	.357 1232	3 178	40		9 2880 0 2871 0
	30	5972	446	5617	190	3032	572	.356 8054	3 178	30		
	40	6419	447	5427	190	3604	572	.356 4876	3 178	20		
	50	6865	446	5238	189	4176	572	.356 1700	3 176	10		
			446		189		572		3 176			
60	0	0.390 7311		0.920 5049		0.424 4748		2.355 8524		0	0	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

67° 0'

23° 0'

'	"	Sine	Diff.	Cosine	Diff.	Tangent	Diff.	Cotangent	Diff.			Proportional Parts
0	0	0.390 7311		0.920 5049		0.424 4748		2.355 8524		0	60	Sine
	10	7758	447	4859	190	5320	572	.355 5348	3 176	50		445 446 447
	20	8204	446	4670	189	5893	573	.355 2174	3 174	40		1 14 5 44 6 44 7
	30	8650	446	4480	190	6465	572	.354 9000	3 173	30		2 89 0 89 2 89 4
	40	9096	446	4291	189	7037	572	.354 5827	3 172	20		3 133 5 133 8 134 1
	50	9543	447	4101	190	7609	572	.354 2655	3 172	10		4 178 0 178 4 178 8
1	0	0.390 9989		0.920 3912		0.424 8182		2.353 9483		0	59	
	10	0.391 0435	446	3722	190	8754	572	.353 6313	3 170	50		5 222 5 223 0 223 5
	20	0881	446	3532	190	9326	572	.353 3142	3 171	40		6 267 0 267 6 268 2
	30	1327	446	3343	189	9899	573	.352 9973	3 169	30		7 311 5 312 2 312 9
	40	1774	447	3153	190	0.425 0471	572	.352 6804	3 169	20		8 356 0 356 8 357 6
	50	2220	446	2963	189	1043	573	.352 3636	3 168	10		9 400 5 401 4 402 3
2	0	0.391 2666		0.920 2774		0.425 1616		2.352 0469		0	58	Cosine
	10	3112	446	2584	190	2188	572	.351 7303	3 166	50		189 190 191
	20	3558	446	2394	190	2761	573	.351 4137	3 166	40		1 18 9 19 0 19 1
	30	4004	446	2205	189	3333	572	.351 0972	3 165	30		2 37 8 38 0 38 2
	40	4450	446	2015	190	3906	573	.350 7808	3 164	20		3 56 7 57 0 57 3
	50	4897	447	1825	190	4478	572	.350 4644	3 164	10		4 75 6 76 0 76 4
3	0	0.391 5343		0.920 1635		0.425 5051		2.350 1481		0	57	
	10	5789	446	1445	190	5624	573	.349 8319	3 162	50		5 91 5 95 0 95 5
	20	6235	446	1256	189	6196	572	.349 5157	3 162	40		6 113 4 114 0 114 6
	30	6681	446	1066	190	6769	573	.349 1997	3 160	30		7 132 3 133 0 133 7
	40	7127	446	0876	190	7342	573	.348 8837	3 160	20		8 151 2 152 0 152 8
	50	7573	446	0686	190	7914	572	.348 5677	3 160	10		9 170 1 171 0 171 9
4	0	0.391 8019		0.920 0496		0.425 8487		2.348 2519		0	56	Tangent
	10	8465	446	0306	190	9060	573	.347 9361	3 158	50		572 573 574
	20	8911	446	0116	190	9632	572	.347 6204	3 157	40		1 57 2 57 3 57 4
	30	9357	446	0.919 9926	190	0.426 0205	573	.347 3047	3 157	30		2 114 4 114 6 114 8
	40	9803	446	9736	190	0778	573	.346 9892	3 155	20		3 171 6 171 9 172 2
	50	0.392 0249	446	9546	190	1351	573	.346 6737	3 155	10		4 228 8 229 2 229 6
5	0	0.392 0695		0.919 9356		0.426 1924		2.346 3582		0	55	
	10	1141	446	9166	190	2497	573	.346 0429	3 153	50		5 286 0 286 5 287 0
	20	1587	446	8976	190	3070	573	.345 7276	3 153	40		6 343 2 343 8 344 4
	30	2033	446	8786	191	3643	573	.345 4124	3 152	30		7 400 4 401 1 401 8
	40	2479	446	8595	190	4215	572	.345 0973	3 151	20		8 457 6 458 4 459 2
	50	2925	446	8405	190	4788	573	.344 7822	3 151	10		9 514 8 515 7 516 4
6	0	0.392 3371		0.919 8215		0.426 5361		2.344 4672		0	54	Cotangent
	10	3817	446	8025	190	5934	573	.344 1523	3 149	50		3180 3170
	20	4263	446	7835	190	6508	574	.343 8374	3 149	40		1 318 0 317 0
	30	4709	446	7644	191	7081	573	.343 5226	3 148	30		2 636 0 634 0
	40	5155	446	7454	190	7654	573	.343 2079	3 147	20		3 954 0 951 0
	50	5601	446	7264	191	8227	573	.342 8933	3 146	10		4 1272 0 1268 0
7	0	0.392 6047		0.919 7073		0.426 8800		2.342 5787		0	53	
	10	6493	445	6883	190	9373	573	.342 2642	3 145	50		5 1590 0 1585 0
	20	6938	446	6693	191	9946	574	.341 9498	3 144	40		6 1908 0 1902 0
	30	7384	446	6502	190	0.427 0520	573	.341 6354	3 144	30		7 2226 0 2219 0
	40	7830	446	6312	191	1093	573	.341 3212	3 142	20		8 2544 0 2536 0
	50	8276	446	6121	190	1666	573	.341 0070	3 142	10		9 2862 0 2853 0
8	0	0.392 8722		0.919 5931		0.427 2239		2.340 6928		0	52	
	10	9168	446	5740	191	2813	574	.340 3787	3 141	50		3160 3150
	20	9613	445	5550	190	3386	573	.340 0647	3 140	40		1 316 0 315 0
	30	0.393 0059	446	5359	191	3959	573	.339 7508	3 139	30		2 632 0 630 0
	40	0505	446	5169	191	4533	574	.339 4370	3 138	20		3 948 0 945 0
	50	0951	446	4978	190	5106	573	.339 1232	3 137	10		4 1264 0 1260 0
9	0	0.393 1397		0.919 4788		0.427 5680		2.338 8095		0	51	
	10	1842	445	4597	191	6253	573	.338 4958	3 137	50		5 1580 0 1575 0
	20	2288	446	4406	190	6827	574	.338 1823	3 135	40		6 1896 0 1890 0
	30	2734	446	4216	191	7400	573	.337 8688	3 135	30		7 2212 0 2205 0
	40	3180	446	4025	191	7974	574	.337 5553	3 133	20		8 2528 0 2520 0
	50	3625	445	3834	191	8547	573	.337 2420	3 133	10		9 2844 0 2835 0
10	0	0.393 4071		0.919 3644		0.427 9121		2.336 9287		0	50	
												Proportional Parts
		Cosine	Diff.	Sine	Diff.	Cotangent	Diff.	Tangent	Diff.	"	'	Proportional Parts

66° 50'

23° 10'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
10	0	0 393 4071		0.919 3644		0.427 9121		2 336 9287		0	50	
	10	4517	446	3453	191	9694	573	336 6155	3 132	50		Sine
	20	4963	446	3262	191	0 428 0268	574	336 3023	3 132	40		445 446
	30	5408	445	3071	191	0842	574	335 9893	3 130	30		1 44 5 44 6
	40	5854	446	2881	190	1415	573	335 6763	3 130	20		2 89 0 89 2
	50	6300	446	2690	191	1989	574	335 3633	3 130	10		3 133 5 133 8
			445		191		574		3 128			4 178 0 178 4
11	0	0 393 6745		0.919 2499		0.428 2563		2.335 0605		0	49	
	10	7191	446	2308	191	3136	573	334 7377	3 128	50		5 222 5 223 0
	20	7637	446	2117	191	3710	574	334 4250	3 127	40		6 267 0 267 6
	30	8082	445	1926	191	4284	574	334 1123	3 127	30		7 311 5 312 2
	40	8528	446	1735	191	4858	574	333 7997	3 126	20		8 356 0 356 8
	50	8973	445	1544	191	5432	573	333 4872	3 125	10		9 400 5 401 4
			446		191				3 124			
12	0	0 393 9419		0.919 1353		0.428 6005		2 333 1748		0	48	
	10	9865	446	1162	191	6579	574	332 8624	3 124	50		Cosine
	20	0 394 0310	445	0971	191	7153	574	332 5502	3 122	40		190 191 192
	30	0756	446	0780	191	7727	574	332 2379	3 123	30		1 19 0 19 1
	40	1201	445	0589	191	8301	574	331 9258	3 121	20		2 38 0 38 2
	50	1647	446	0398	191	8875	574	331 6137	3 121	10		3 57 0 57 3
			445		191		574		3 120			4 76 0 76 4
13	0	0 394 2093		0.919 0207		0 428 9449		2.331 3017		0	47	
	10	2538	445	0016	191	0 429 0023	574	330 9897	3 120	50		5 95 0 95 5
	20	2984	446		191	0597	574	330 6779	3 118	40		6 114 0 114 6
	30	3429	445		191	1171	574	330 3661	3 118	30		7 134 0 133 7
	40	3875	446		192	1745	574	330 0543	3 118	20		8 152 0 152 8
	50	4320	445		191	2320	575	329 7427	3 116	10		9 171 0 171 9
			446		191		574		3 116			172 8
14	0	0.394 4766		0.918 9060		0.429 2894		2 329 4311		0	46	
	10	5211	445	8869	191	3468	574	329 1196	3 115	50		Tangent
	20	5657	446	8677	192	4042	574	328 8081	3 115	40		573 574 575
	30	6102	445	8486	191	4616	574	328 4968	3 113	30		1 57 3 57 4
	40	6548	446	8295	191	5191	575	328 1854	3 113	20		2 114 6 114 8
	50	6993	445	8103	192	5765	574	327 8742	3 112	10		3 171 9 172 2
			446		191		574		3 112			4 229 2 229 6
15	0	0 394 7439		0 918 7912		0.429 6339		2.327 5630		0	45	
	10	7884	445	7721	191	6913	574	327 2519	3 111	50		5 286 5 287 0
	20	8329	445	7529	192	7488	575	326 9409	3 110	40		6 343 8 344 4
	30	8775	446	7338	191	8062	574	326 6300	3 109	30		7 401 1 401 8
	40	9220	445	7146	192	8636	575	326 3191	3 109	20		8 458 4 459 2
	50	9666	446	6955	191	9211	575	326 0083	3 108	10		9 515 7 516 6
			445		192		574		3 108			517 5
16	0	0 395 0111		0 918 6763		0 429 9785		2 325 6975		0	44	
	10	0556	445	6572	191	0 430 0360	575	325 3868	3 107	50		Cotangent
	20	1002	446	6380	192	0934	574	325 0762	3 106	40		3130 3120
	30	1447	445	6189	191	1509	575	324 7657	3 105	30		1 313 0 312 0
	40	1893	446	5997	192	2083	574	324 4552	3 105	20		2 626 0 624 0
	50	2338	445	5806	192	2658	575	324 1448	3 104	10		3 930 0 936 0
			446		191		574		3 103			4 1252 0 1248 0
17	0	0 395 2783		0 918 5614		0.430 3232		2 323 8345		0	43	
	10	3229	446	5422	192	3807	575	323 5243	3 102	50		5 1565 0 1560 0
	20	3674	445	5231	192	4382	574	323 2141	3 102	40		6 1878 0 1872 0
	30	4119	445	5039	192	4956	574	322 9040	3 101	30		7 2191 0 2184 0
	40	4564	445	4847	192	5531	575	322 5939	3 101	20		8 2504 0 2496 0
	50	5010	446	4656	191	6106	575	322 2839	3 100	10		9 2817 0 2808 0
			445		192		574		3 099			
18	0	0 395 5455		0 918 4464		0 430 6680		2.321 9740		0	42	
	10	5900	445	4272	192	7255	575	321 6642	3 098	50		3110 3100
	20	6346	446	4080	192	7830	575	321 3544	3 098	40		1 311 0 310 0
	30	6791	445	3888	192	8405	575	321 0447	3 097	30		2 622 0 620 0
	40	7236	445	3697	191	8980	575	320 7351	3 096	20		3 933 0 930 0
	50	7681	446	3505	192	9554	574	320 4255	3 096	10		4 1244 0 1240 0
			445		192		575		3 095			5 1555 0 1550 0
19	0	0 395 8127		0.918 3313		0.431 0129		2.320 1160		0	41	
	10	8572	445	3121	192	0704	575	319 8066	3 094	50		6 1866 0 1860 0
	20	9017	445	2929	192	1279	575	319 4973	3 093	40		7 2177 0 2170 0
	30	9462	445	2737	192	1854	575	319 1880	3 093	30		8 2488 0 2480 0
	40	9907	445	2545	192	2429	575	318 8788	3 092	20		9 2799 0 2790 0
	50	0 396 0352	445	2353	192	3004	575	318 5696	3 092	10		
			446		192		575		3 090			3090
20	0	0 396 0798		0.918 2161		0.431 3579		2.318 2606		0	40	
												1 309 0
												2 618 0
												3 927 0
												4 1236 0
												5 1545 0
												6 1854 0
												7 2163 0
												8 2472 0
												9 2781 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff			Proportional Parts

66° 40'

23° 20'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
20	0	0.396 0798		0.918 2161		0.431 3579		2.318 2606		0	40	
	10	1243	445	1969	192	4154	575	.317 9516	3 090	50		Sine
	20	1688	445	1777	192	4729	575	.317 6426	3 090	40		444 445 446
	30	2133	445	1585	192	5304	575	.317 3338	3 088	30		1 11 4 44 5 44 6
	40	2578	445	1393	192	5879	575	.317 0250	3 088	20		2 88 8 89 0 89 2
	50	3023	445	1201	192	6454	575	.316 7163	3 087	10		3 13 2 133 5 133 8
							576		3 087			4 177 6 178 0 178 4
21	0	0.396 3468		0.918 1009		0.431 7030		2.316 4076		0	39	
	10	3914	446	0816	193	7605	575	.316 0990	3 086	50		5 222 0 222 5 223 0
	20	4359	445	0624	192	8180	575	.315 7905	3 085	40		6 206 4 207 0 207 6
	30	4804	445	0432	192	8755	575	.315 4821	3 084	30		7 310 8 311 5 312 2
	40	5249	445	0240	192	9330	575	.315 1737	3 084	20		8 453 2 356 0 356 8
	50	5694	445	0047	192	9906	576	.314 8654	3 083	10		9 399 6 400 5 401 4
							575		3 083			
22	0	0.396 6139		0.917 9855		0.432 0481		2.314 5671		0	38	
	10	6584	445	9663	192	1056	575	.314 2490	3 081	50		Cosine
	20	7029	445	9471	192	1632	576	.313 9409	3 081	40		192 193 194
	30	7474	445	9278	192	2207	575	.313 6328	3 081	30		1 19 2 19 3 19 4
	40	7919	445	9086	192	2782	575	.313 3249	3 079	20		2 38 4 38 6 38 8
	50	8364	445	8894	192	3358	576	.313 0170	3 079	10		3 57 6 57 9 58 2
					193		575		3 078			4 76 8 77 2 77 6
23	0	0.396 8809		0.917 8701		0.432 3933		2.312 7092		0	37	
	10	9254	445	8509	192	4509	576	.312 4014	3 078	50		5 96 0 96 5 97 0
	20	9699	445	8316	193	5084	575	.312 0937	3 077	40		6 115 2 115 8 116 4
	30	0.397 0144	445	8124	192	5660	576	.311 7861	3 076	30		7 134 1 135 1 135 8
	40	0589	445	7931	192	6235	575	.311 4785	3 076	20		8 115 6 154 4 155 2
	50	1034	445	7739	192	6811	576	.311 1711	3 074	10		9 172 8 173 7 174 6
					193		575		3 074			
24	0	0.397 1479		0.917 7546		0.432 7386		2.310 8637		0	36	
	10	1924	445	7354	192	7962	576	.310 5563	3 074	50		Tangent
	20	2369	445	7161	193	8538	576	.310 2490	3 073	40		575 576 577
	30	2814	445	6969	192	9113	575	.309 9418	3 072	30		1 57 5 57 6 57 7
	40	3259	445	6776	193	9689	576	.309 6347	3 071	20		2 115 0 115 2 115 4
	50	3703	445	6583	192	0.433 0265	576	.309 3276	3 071	10		3 172 5 172 8 173 1
							575		3 070			4 230 0 230 4 230 8
25	0	0.397 4148		0.917 6391		0.433 0840		2.309 0206		0	35	
	10	4593	445	6198	193	1416	576	.308 7137	3 069	50		5 287 5 288 0 288 5
	20	5038	445	6005	193	1992	576	.308 4068	3 069	40		6 315 0 345 6 346 2
	30	5483	445	5812	193	2568	576	.308 1001	3 067	30		7 402 5 403 2 403 9
	40	5928	445	5620	192	3144	576	.307 7933	3 068	20		8 460 0 460 8 461 6
	50	6373	445	5427	193	3719	575	.307 4867	3 066	10		9 517 5 518 4 519 3
					193		576		3 066			
26	0	0.397 6818		0.917 5234		0.433 4295		2.307 1801		0	34	
	10	7262	444	5041	193	4871	576	.306 8736	3 065	50		Cotangent
	20	7707	445	4849	192	5447	576	.306 5671	3 065	40		3090 3080
	30	8152	445	4656	193	6023	576	.306 2607	3 064	30		1 309 0 308 0
	40	8597	445	4463	193	6599	576	.305 9544	3 063	20		2 618 0 616 0
	50	9042	444	4270	193	7175	576	.305 6482	3 062	10		3 927 0 924 0
							576		3 062			4 1236 0 1232 0
27	0	0.397 9486		0.917 4077		0.433 7751		2.305 3420		0	33	
	10	9931	445	3884	193	8327	576	.305 0359	3 061	50		5 1545 0 1540 0
	20	0.398 0376	445	3691	193	8903	576	.304 7299	3 060	40		6 1854 0 1848 0
	30	0821	445	3498	193	9479	576	.304 4239	3 060	30		7 2163 0 2156 0
	40	1265	444	3305	193	0.434 0056	577	.304 1180	3 059	20		8 2472 0 2464 0
	50	1710	445	3112	193	0632	576	.303 8122	3 058	10		9 2781 0 2772 0
							576					
28	0	0.398 2155		0.917 2919		0.434 1208		2.303 5064		0	32	
	10	2599	444	2726	193	1784	576	.303 2007	3 057	50		3070 3060
	20	3044	445	2533	193	2360	576	.302 8951	3 056	40		1 307 0 306 0
	30	3489	445	2340	193	2936	576	.302 5895	3 056	30		2 614 0 612 0
	40	3934	445	2147	193	3513	577	.302 2840	3 055	20		3 921 0 918 0
	50	4378	444	1953	194	4089	576	.301 9786	3 054	10		4 1228 0 1224 0
					193		576					5 1535 0 1530 0
29	0	0.398 4823		0.917 1780		0.434 4665		2.301 6732		0	31	
	10	5268	445	1567	193	5242	577	.301 3680	3 052	50		6 1842 0 1836 0
	20	5712	444	1374	193	5818	576	.301 0627	3 053	40		7 2149 0 2142 0
	30	6157	445	1181	193	6394	576	.300 7576	3 051	30		8 2456 0 2448 0
	40	6601	444	0987	194	6971	577	.300 4525	3 051	20		9 2763 0 2754 0
	50	7046	445	0794	193	7547	576	.300 1475	3 050	10		3050
							577					1 305 0
30	0	0.398 7491		0.917 0601		0.434 8124		2.299 8425		0	30	
												2 610 0
												3 915 0
												4 1220 0
												5 1525 0
												6 1830 0
												7 2135 0
												8 2440 0
												9 2745 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff			Proportional Parts

66° 30'

23° 30'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
30	0	0.398 7491		0.917 0601		0.434 8124		2.299 8425		0	30	
	10	7935	444	0407	194	8700	576	.299 5377	3 048	50		Sine
	20	8380	445	0214	193	9277	577	.299 2329	3 048	40		444 445
	30	8824	444	0021	193	9853	576	.298 9281	3 048	30		1 44 4 44 5
	40	9269	445	0.916 9827	194	0.435 0430	577	.298 6234	3 047	20		2 88 8 89 0
	50	9714	445	9634	193	1006	576	.298 3188	3 046	10		3 133 2 133 5
			444		194		577		3 045			4 177 6 178 0
31	0	0.399 0158		0.916 9440		0.435 1583		2.298 0143		0	29	
	10	0603	445	9247	193	2160	577	.297 7098	3 045	50		5 222 0 222 5
	20	1047	444	9054	193	2736	576	.297 4054	3 044	40		6 266 4 267 0
	30	1492	445	8860	194	3313	577	.297 1011	3 044	30		7 310 8 311 5
	40	1936	444	8666	193	3890	577	.296 7968	3 043	20		8 355 2 356 0
	50	2381	445	8473	194	4466	576	.296 4926	3 042	10		9 390 6 400 5
			444		194		577		3 041			
32	0	0.399 2825		0.916 8279		0.435 5043		2.296 1885		0	28	
	10	3270	445	8086	193	5620	577	.295 8844	3 041	50		Cosine
	20	3714	444	7892	194	6197	577	.295 5804	3 040	40		193 194 195
	30	4159	445	7699	193	6774	577	.295 2765	3 039	30		1 19 3 19 4 19 5
	40	4603	444	7505	194	7350	576	.294 9726	3 039	20		2 38 6 38 8 39 0
	50	5048	445	7311	194	7927	577	.294 6688	3 038	10		3 57 9 58 2 58 5
			444		193		577		3 037			4 77 2 77 6 78 0
33	0	0.399 5492		0.916 7118		0.435 8504		2.294 3661		0	27	
	10	5936	444	6924	194	9081	577	.294 0615	3 036	50		5 96 5 97 0 97 5
	20	6381	445	6730	194	9658	577	.293 7579	3 036	40		6 115 8 116 4 117 0
	30	6825	444	6536	194	0.436 0235	577	.293 4543	3 036	30		7 135 1 135 8 136 5
	40	7270	445	6343	193	0812	577	.293 1509	3 034	20		8 151 4 153 2 156 0
	50	7714	444	6149	194	1389	577	.292 8475	3 034	10		9 173 7 174 6 175 5
			444		194		577		3 033			
34	0	0.399 8158		0.916 5955		0.436 1966		2.292 5442		0	26	
	10	8603	445	5761	194	2543	577	.292 2409	3 033	50		Tangent
	20	9047	444	5567	194	3120	577	.291 9377	3 032	40		576 577 578
	30	9492	445	5373	194	3697	577	.291 6346	3 031	30		1 57 6 57 7 57 8
	40	9936	444	5179	194	4275	578	.291 3316	3 030	20		2 115 2 115 4 115 6
	50	0 400 0380	445	4985	194	4852	577	.291 0286	3 030	10		3 172 8 173 1 173 4
			444		194		577		3 029			4 230 1 230 8 231 2
35	0	0.400 0825		0.916 4791		0.436 5429		2.290 7257		0	25	
	10	1269	444	4597	194	6006	577	.290 4228	3 029	50		5 288 0 288 5 289 0
	20	1713	445	4403	194	6583	577	.290 1200	3 028	40		6 345 6 346 2 346 8
	30	2157	444	4209	194	7161	578	.289 8173	3 027	30		7 403 2 403 9 404 6
	40	2602	445	4015	194	7738	577	.289 5147	3 026	20		8 460 8 461 6 462 4
	50	3046	444	3821	194	8315	577	.289 2121	3 026	10		9 518 4 519 3 520 2
			444		194		578		3 025			
36	0	0.400 3490		0.916 3627		0.436 8893		2.288 9096		0	24	
	10	3935	445	3433	194	9470	577	.288 6071	3 025	50		Cotangent
	20	4379	444	3239	194	0.437 0047	577	.288 3047	3 024	40		3050 3040
	30	4823	445	3045	194	0625	578	.288 0024	3 023	30		1 305 0 304 0
	40	5267	444	2851	194	1202	577	.287 7002	3 023	20		2 610 0 608 0
	50	5712	445	2657	195	1780	578	.287 3980	3 022	10		3 915 0 912 0
			444				577		3 021			4 1220 0 1216 0
37	0	0.400 6156		0.916 2462		0.437 2357		2.287 0959		0	23	
	10	6600	444	2268	194	2935	578	.286 7938	3 021	50		5 1525 0 1520 0
	20	7044	445	2074	194	3512	577	.286 4919	3 020	40		6 1830 0 1824 0
	30	7488	444	1880	194	4090	578	.286 1900	3 019	30		7 2135 0 2128 0
	40	7933	445	1685	195	4667	577	.285 8881	3 019	20		8 2440 0 2432 0
	50	8377	444	1491	194	5245	578	.285 5863	3 018	10		9 2745 0 2736 0
			444		194		577		3 017			
38	0	0.400 8821		0.916 1297		0.437 5823		2.285 2846		0	22	
	10	9265	444	1102	195	6400	577	.284 9830	3 016	50		3030 3020
	20	9709	445	0908	194	6978	578	.284 6814	3 016	40		1 303 0 302 0
	30	0.401 0153	444	0713	195	7556	578	.284 3799	3 015	30		2 606 0 604 0
	40	0597	445	0519	194	8133	577	.284 0785	3 014	20		3 909 0 906 0
	50	1041	444	0325	195	8711	578	.283 7771	3 014	10		4 1212 0 1208 0
			445				577		3 013			5 1515 0 1510 0
39	0	0.401 1486		0.916 0130		0.437 9289		2.283 4758		0	21	
	10	1930	444	0.915 9936	194	9867	578	.283 1745	3 013	50		6 1818 0 1812 0
	20	2374	445	9741	195	0.438 0444	577	.282 8734	3 011	40		7 2121 0 2114 0
	30	2818	444	9547	195	1022	578	.282 5722	3 012	30		8 2424 0 2416 0
	40	3262	445	9352	195	1600	578	.282 2712	3 010	20		9 2727 0 2718 0
	50	3706	444	9157	194	2178	578	.281 9702	3 009	10		3010
			444				577					1 301 0
40	0	0.401 4150		0.915 8963		0.438 2756		2.281 6693		0	20	
												2 602 0
												3 903 0
												4 1204 0
												5 1505 0
												6 1806 0
												7 2107 0
												8 2408 0
												9 2709 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

66° 20'

23° 40'

'	"	Sine	Diff.	Cosine	Diff.	Tangent	Diff.	Cotangent	Diff.			Proportional Parts
40	0	0.401 4150		0.915 8963		0.438 2756		2.281 6693		0	20	
	10	4594	444	8768	195	3334	578	.281 3685	3 008	50		Sine
	20	5038	444	8574	194	3912	578	.281 0677	3 008	40		
	30	5482	444	8379	195	4490	578	.280 7670	3 007	30		443 444
	40	5926	444	8184	195	5068	578	.280 4663	3 007	20		1 44 3 44 4
	50	6370	444	7989	195	5646	578	.280 1658	3 005	10		2 88 6 88 8
					194				3 005			3 132 9 133 2
												4 177 2 177 6
41	0	0.401 6814		0.915 7795		0.438 6224		2.279 8653		0	19	
	10	7258	444	7600	195	6802	578	.279 5648	3 005	50		5 221 5 222 0
	20	7702	444	7405	195	7380	578	.279 2644	3 004	40		6 265 8 266 4
	30	8146	444	7210	195	7959	579	.278 9641	3 003	30		7 310 1 310 8
	40	8590	444	7016	194	8537	578	.278 6639	3 002	20		8 354 4 355 2
	50	9034	444	6821	195	9115	578	.278 3637	3 002	10		9 398 7 399 6
									3 001			
42	0	0.401 9478		0.915 6626		0.438 9693		2.278 0636		0	18	
	10	9922	444	6431	195	0.439 0271	578	.277 7635	3 001	50		Cosine
	20	0.402 0366	444	6236	195	0850	579	.277 4636	2 999	40		194 195 196
	30	0810	444	6041	195	1428	578	.277 1636	3 000	30		1 19 4 19 5 19 6
	40	1253	443	5846	195	2006	578	.276 8638	2 998	20		2 38 8 39 0 39 2
	50	1697	444	5651	195	2585	579	.276 5640	2 998	10		3 58 2 58 5 58 8
					195		578		2 997			4 77 6 78 0 78 4
												5 97 0 97 5 98 0
43	0	0.402 2141		0.915 5456		0.439 3163		2.276 2643		0	17	
	10	2585	444	5261	195	3741	578	.275 9647	2 996	50		6 116 4 117 0 117 6
	20	3029	444	5066	195	4320	579	.275 6651	2 996	40		7 135 8 136 5 137 2
	30	3473	444	4871	195	4898	578	.275 3656	2 995	30		8 155 2 156 0 156 8
	40	3917	444	4676	195	5477	579	.275 0661	2 995	20		9 174 6 175 5 176 4
	50	4360	443	4481	195	6055	578	.274 7667	2 994	10		
					195		579		2 993			Tangent
44	0	0.402 4804		0.915 4286		0.439 6634		2.274 4674		0	16	
	10	5248	444	4091	195	7212	578	.274 1682	2 992	50		578 579 580
	20	5692	444	3896	195	7791	579	.273 8690	2 992	40		1 57 8 57 9 58 0
	30	6136	444	3700	196	8369	578	.273 5698	2 992	30		2 115 6 115 8 116 0
	40	6579	443	3505	195	8948	579	.273 2708	2 990	20		3 173 4 173 7 174 0
	50	7023	444	3310	195	9527	579	.272 9718	2 990	10		4 231 2 231 6 232 0
					195		578		2 989			5 289 0 289 5 290 0
45	0	0.402 7467		0.915 3115		0.440 0105		2.272 6729		0	15	
	10	7911	444	2920	195	0684	579	.272 3740	2 989	50		6 346 8 347 4 348 0
	20	8354	443	2724	196	1263	579	.272 0752	2 988	40		7 401 6 405 3 406 0
	30	8798	444	2529	195	1841	578	.271 7765	2 987	30		8 462 4 463 2 464 0
	40	9242	444	2334	196	2420	579	.271 4778	2 987	20		9 520 2 521 1 522 0
	50	9686	443	2138	195	2999	579	.271 1793	2 985	10		Cotangent
					195		579		2 986			3010 3000
46	0	0.403 0129		0.915 1943		0.440 3578		2.270 8807		0	14	
	10	0573	444	1747	196	4157	579	.270 5823	2 984	50		1 301 0 300 0
	20	1017	444	1552	195	4736	579	.270 2839	2 984	40		2 602 0 600 0
	30	1460	443	1357	195	5314	578	.269 9855	2 984	30		3 903 0 900 0
	40	1904	444	1161	196	5893	579	.269 6873	2 984	20		4 1204 0 1200 0
	50	2348	444	0966	195	6472	579	.269 3891	2 982	10		5 1505 0 1500 0
					196		579		2 982			6 1806 0 1800 0
47	0	0.403 2791		0.915 0770		0.440 7051		2.269 0909		0	13	
	10	3235	444	0575	195	7630	579	.268 7929	2 980	50		7 2107 0 2100 0
	20	3679	444	0379	196	8209	579	.268 4949	2 980	40		8 2408 0 2400 0
	30	4122	443	0184	195	8788	579	.268 1969	2 978	30		9 2709 0 2700 0
	40	4566	444	0.914 9988	196	9367	579	.267 8991	2 978	20		2990 2980
	50	5009	443	9792	195	9946	580	.267 6013	2 978	10		1 299 0 298 0
												2 598 0 596 0
												3 897 0 894 0
												4 1196 0 1192 0
												5 1495 0 1490 0
												6 1794 0 1788 0
												7 2093 0 2086 0
												8 2392 0 2384 0
												9 2691 0 2682 0
48	0	0.403 5453		0.914 9597		0.441 0526		2.267 3035		0	12	
	10	5897	444	9401	196	1105	579	.267 0058	2 977	50		2970
	20	6340	443	9205	196	1684	579	.266 7082	2 976	40		1 297 0
	30	6784	443	9010	195	2263	579	.266 4107	2 975	30		2 594 0
	40	7227	443	8814	196	2842	579	.266 1132	2 975	20		3 891 0
	50	7671	443	8618	196	3421	580	.265 8158	2 974	10		4 1188 0
												5 1485 0
												6 1782 0
												7 2079 0
												8 2376 0
												9 2673 0
49	0	0.403 8114		0.914 8422		0.441 4001		2.265 5184		0	11	
	10	8558	444	8227	195	4580	579	.265 2212	2 972	50		
	20	9001	443	8031	196	5159	579	.264 9239	2 973	40		
	30	9445	444	7835	196	5739	580	.264 6268	2 971	30		
	40	9888	443	7639	196	6318	579	.264 3297	2 971	20		
	50	0.404 0332	444	7443	196	6897	580	.264 0327	2 970	10		
			443		196				2 970			
50	0	0.404 0775		0.914 7247		0.441 7477		2.263 7357		0	10	
												Proportional Parts
		Cosine	Diff.	Sine	Diff.	Cotangent	Diff.	Tangent	Diff.	"	'	

66° 10'

23° 50'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
50	0	0.404 0775		0.914 7247		0.441 7477		2.263 7357		0	10	
	10	1219	444	7051	196	8056	579	.263 4388	2 969	50		Sine
	20	1662	443	6856	195	8636	580	263 1420	2 968	40		442 443 444
	30	2106	444	6660	196	9215	579	.262 8452	2 968	30		1 44 2 44 3 44 4
	40	2549	443	6464	196	9795	580	262 5485	2 967	20		2 88 4 88 6 88 8
	50	2993	444	6268	196	0 442 0374	579	.262 2519	2 966	10		3 132 6 132 9 133 2
			443				580		2 965			4 176 8 177 2 177 6
51	0	0.404 3436		0.914 6072		0.442 0954		2 261 9554		0	9	
	10	3879	443	5876	196	1533	579	.261 6589	2 965	50		5 221 0 221 5 222 0
	20	4323	444	5679	197	2113	580	.261 3624	2 965	40		6 265 2 265 8 266 4
	30	4766	443	5483	196	2693	580	.261 0660	2 964	30		7 309 4 310 1 310 8
	40	5210	444	5287	196	3272	579	.260 7697	2 963	20		8 353 6 354 4 355 2
	50	5653	443	5091	196	3852	580	260 4735	2 962	10		9 397 8 398 7 399 6
									2 962			
52	0	0.404 6096		0.914 4895		0.442 4432		2 260 1773		0	8	
	10	6540	444	4699	196	5011	579	.259 8812	2 961	50		Cosine
	20	6983	443	4503	196	5591	580	.259 5852	2 960	40		195 196 197
	30	7426	444	4306	197	6171	580	.259 2892	2 960	30		1 19 5 19 6 19 7
	40	7870	443	4110	196	6751	580	.258 9933	2 959	20		2 39 0 39 2 39 4
	50	8313	443	3914	196	7331	580	.258 6974	2 959	10		3 58 5 58 8 59 1
							579		2 958			4 78 0 78 4 78 8
53	0	0.404 8756		0.914 3718		0.442 7910		2 258 4016		0	7	
	10	9200	444	3521	197	8490	580	.258 1059	2 957	50		5 97 5 98 0 98 5
	20	9643	443	3325	196	9070	580	.257 8102	2 957	40		6 117 0 117 6 118 2
	30	0.405 0086	443	3129	196	9650	580	.257 5147	2 955	30		7 136 5 137 2 137 9
	40	0529	444	2932	197	0.443 0230	580	.257 2191	2 956	20		8 156 0 156 8 157 6
	50	0973	443	2736	196	0810	580	.256 9237	2 954	10		9 175 5 176 4 177 3
									2 954			
54	0	0.405 1416		0.914 2540		0.443 1390		2 256 6283		0	6	
	10	1859	443	2343	197	1970	580	.256 3329	2 954	50		Tangent
	20	2302	443	2147	196	2550	580	.256 0377	2 952	40		579 580 581
	30	2746	444	1950	197	3130	580	.255 7425	2 952	30		1 57 0 58 0 58 1
	40	3189	443	1754	196	3710	580	.255 4473	2 952	20		2 115 8 116 0 116 2
	50	3632	443	1557	196	4290	581	.255 1522	2 951	10		3 173 7 174 0 174 3
									2 950			4 231 6 232 0 232 4
55	0	0.405 4075		0.914 1361		0.443 4871		2.254 8572		0	5	
	10	4518	444	1164	197	5451	580	.254 5623	2 949	50		5 249 5 250 0 250 5
	20	4962	443	0968	196	6031	580	.254 2674	2 949	40		6 347 4 348 0 348 6
	30	5405	443	0771	197	6611	580	.253 9726	2 948	30		7 405 3 406 0 406 7
	40	5848	443	0574	196	7191	581	.253 6778	2 947	20		8 463 2 464 0 464 8
	50	6291	443	0378	197	7772	580	.253 3831	2 946	10		9 521 1 522 0 522 9
56	0	0.405 6734		0.914 0181		0.443 8352		2.253 0885		0	4	
	10	7177	443	0.913 9984	197	8932	580	.252 7940	2 945	50		Cotangent
	20	7620	443	9788	196	9513	581	.252 4995	2 945	40		2970 2960
	30	8063	444	9591	197	0.444 0093	580	.252 2050	2 945	30		1 297 0 296 0
	40	8507	443	9394	197	0674	581	.251 9107	2 943	20		2 504 0 502 0
	50	8950	443	9197	196	1254	580	.251 6164	2 943	10		3 891 0 888 0
												4 1188 0 1184 0
57	0	0.405 9393		0.913 9001		0.444 1834		2.251 3221		0	3	
	10	9836	443	8804	197	2415	581	.251 0279	2 942	50		5 1183 0 1180 0
	20	0.406 0279	443	8607	197	2995	580	.250 7338	2 941	40		6 1782 0 1776 0
	30	0722	443	8410	197	3576	581	.250 4398	2 940	30		7 2079 0 2072 0
	40	1165	443	8213	197	4156	580	.250 1458	2 940	20		8 2376 0 2368 0
	50	1608	443	8016	197	4737	581	.249 8519	2 939	10		9 2673 0 2664 0
58	0	0.406 2051		0.913 7819		0.444 5318		2.249 5580		0	2	
	10	2494	443	7622	197	5898	580	.249 2642	2 938	50		2950 2940
	20	2937	443	7425	197	6479	581	.248 9705	2 937	40		1 295 0 294 0
	30	3380	443	7228	197	7060	581	.248 6769	2 936	30		2 590 0 588 0
	40	3823	443	7031	197	7640	580	.248 3833	2 936	20		3 885 0 882 0
	50	4266	443	6834	197	8221	581	.248 0897	2 935	10		4 1180 0 1176 0
												5 1475 0 1470 0
59	0	0.406 4709		0.913 6637		0.444 8802		2.247 7962		0	1	
	10	5152	443	6440	197	9383	581	.247 5028	2 934	50		6 1770 0 1764 0
	20	5595	443	6243	197	9963	580	.247 2095	2 933	40		7 2065 0 2058 0
	30	6038	443	6046	197	0.445 0544	581	.246 9162	2 933	30		8 2360 0 2352 0
	40	6481	443	5849	197	1125	581	.246 6230	2 932	20		9 2655 0 2646 0
	50	6924	442	5652	197	1706	581	.246 3299	2 931	10		
									2 931			2930
60	0	0.406 7366		0.913 5455		0.445 2287		2.246 0368		0	0	
												1 293 0
												2 586 0
												3 879 0
												4 1172 0
												5 1465 0
												6 1758 0
												7 2051 0
												8 2344 0
												9 2637 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

66° 0'

24° 0'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
0	0	0.406 7366		0.913 5455		0.445 2287		2 246 0368		0	60	Sine
	10	7809	443	5257	198	2868	581	245 7438	2 930	50		442 443
	20	8252	443	5060	197	3449	581	245 4508	2 930	40		1 44 2 44 3
	30	8695	443	4863	197	4030	581	245 1579	2 929	30		2 88 4 88 6
	40	9138	443	4666	197	4611	581	244 8651	2 928	20		3 132 6 132 9
	50	9581	443	4468	198	5192	581	244 5723	2 928	10		4 176 8 177 2
1	0	0 407 0024		0.913 4271		0 445 5773		2 244 2796		0	59	5 221 0 221 5
	10	0466	442	4074	197	6354	581	243 9870	2 926	50		6 265 2 265 8
	20	0909	443	3876	198	6935	581	243 6944	2 926	40		7 309 4 310 1
	30	1352	443	3679	197	7516	581	243 4019	2 925	30		8 353 6 354 4
	40	1795	443	3482	197	8097	581	243 1094	2 925	20		9 397 8 398 7
	50	2238	443	3284	198	8678	581	242 8170	2 924	10		
2	0	0.407 2681		0.913 3087		0.445 9260		2.242 5247		0	58	Cosine
	10	3123	442	2889	198	9841	581	242 2325	2 922	50		197 198 199
	20	3566	443	2692	197	0.446 0422	581	241 9403	2 922	40		1 19 7 19 8 19 9
	30	4009	443	2494	198	1003	581	241 6481	2 922	30		2 39 4 39 6 39 8
	40	4452	442	2297	197	1585	581	241 3561	2 920	20		3 59 1 59 4 59 7
	50	4894	443	2099	198	2166	581	241 0641	2 920	10		4 78 8 79 2 79 6
3	0	0.407 5337		0.913 1902		0 446 2747		2 240 7721		0	57	5 98 5 99 0 99 5
	10	5780	443	1704	198	3329	581	240 4802	2 919	50		6 118 2 118 8 119 4
	20	6223	442	1506	198	3910	581	240 1884	2 918	40		7 137 9 138 6 139 3
	30	6665	443	1309	197	4492	581	239 8967	2 917	30		8 157 6 158 4 159 2
	40	7108	443	1111	198	5073	581	239 6050	2 917	20		9 177 3 178 2 179 1
	50	7551	442	0913	197	5655	581	239 3134	2 916	10		
4	0	0.407 7993		0.913 0716		0.446 6236		2.239 0218		0	56	Tangent
	10	8436	443	0518	198	6818	581	238 7303	2 915	50		581 582 583
	20	8879	443	0320	198	7399	581	238 4389	2 914	40		1 58 1 58 2 58 3
	30	9321	442	0123	197	7981	581	238 1475	2 914	30		2 116 2 116 4 116 6
	40	9764	443	0.912 9925	198	8562	581	237 8562	2 913	20		3 174 3 174 6 174 9
	50	0.408 0206	443	9727	198	9144	581	237 5649	2 913	10		4 232 4 232 8 233 2
5	0	0.408 0649		0.912 9529		0 446 9726		2.237 2738		0	55	5 290 5 291 0 291 5
	10	1092	443	9331	198	0.447 0307	581	236 9826	2 912	50		6 348 6 349 2 349 8
	20	1534	442	9133	198	0889	581	236 6916	2 912	40		7 406 7 407 4 408 1
	30	1977	443	8936	197	1471	581	236 4006	2 910	30		8 464 8 465 6 466 4
	40	2419	442	8738	198	2053	581	236 1097	2 909	20		9 522 9 523 8 524 7
	50	2862	443	8540	198	2634	581	235 8188	2 909	10		
6	0	0.408 3305		0.912 8342		0.447 3216		2.235 5280		0	54	Cotangent
	10	3747	442	8144	198	3798	581	235 2373	2 907	50		2930 2920
	20	4190	443	7946	198	4380	581	234 9466	2 907	40		1 293 0 292 0
	30	4632	442	7748	198	4962	581	234 6560	2 906	30		2 586 0 584 0
	40	5075	443	7550	198	5544	581	234 3654	2 906	20		3 879 0 876 0
	50	5517	442	7352	198	6126	581	234 0749	2 905	10		4 1172 0 1168 0
7	0	0.408 5960		0.912 7154		0.447 6708		2.233 7845		0	53	5 1465 0 1460 0
	10	6402	442	6955	199	7290	582	233 4941	2 904	50		6 1758 0 1752 0
	20	6845	443	6757	198	7872	582	233 2038	2 903	40		7 2051 0 2044 0
	30	7287	442	6559	198	8454	582	232 9136	2 902	30		8 2344 0 2336 0
	40	7730	443	6361	198	9036	582	232 6234	2 901	20		9 2637 0 2628 0
	50	8172	443	6163	198	9618	582	232 3333	2 900	10		
8	0	0.408 8615		0.912 5965		0.448 0200		2.232 0433		0	52	2910 2900
	10	9057	442	5766	199	0782	582	231 7533	2 900	50		1 291 0 290 0
	20	9499	443	5568	198	1364	582	231 4634	2 899	40		2 582 0 580 0
	30	9942	442	5370	198	1946	582	231 1735	2 899	30		3 873 0 870 0
	40	0.409 0384	443	5172	199	2529	583	230 8837	2 898	20		4 1164 0 1160 0
	50	0827	442	4973	198	3111	582	230 5940	2 897	10		5 1455 0 1450 0
9	0	0.409 1269		0.912 4775		0.448 3693		2.230 3043		0	51	6 1746 0 1740 0
	10	1711	442	4577	198	4275	582	230 0147	2 896	50		7 2037 0 2030 0
	20	2154	443	4378	199	4858	583	229 7252	2 895	40		8 2328 0 2320 0
	30	2596	442	4180	199	5440	582	229 4357	2 895	30		9 2619 0 2610 0
	40	3038	443	3981	198	6022	583	229 1462	2 893	20		
	50	3481	442	3783	199	6605	582	228 8569	2 893	10		
10	0	0.409 3923		0.912 3584		0.448 7187		2.228 5676		0	50	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

65° 50'

24° 10'

'	"	Sine	Diff	Cosine	Diff.	Tangent	Diff	Cotangent	Diff			Proportional Parts
10	0	0.409 3923		0.912 3584		0.448 7187		2.228 5676		0	50	
	10	4365	442	3386	198	7770	583	.228 2784	2 892	50		Sine
	20	4808	443	3187	199	8352	582	.227 9892	2 891	40		441 442 443
	30	5250	442	2989	198	8935	583	.227 7001	2 891	30		1 44 1 44 2 44 3
	40	5692	442	2790	199	9517	582	.227 4110	2 891	20		2 88 2 88 4 88 6
	50	6135	443	2592	198	0.449 0100	583	.227 1221	2 889	10		3 132 3 132 6 132 9
			442		199		582		2 890			4 176 4 176 8 177 2
11	0	0.409 6577		0.912 2393		0.449 0682		2.226 8331		0	49	
	10	7019	442	2195	198	1265	583	.226 5443	2 888	50		5 220 5 211 0 221 5
	20	7461	442	1996	199	1847	582	.226 2555	2 888	40		6 204 6 205 2 205 8
	30	7904	443	1797	199	2430	583	.225 9667	2 888	30		7 308 7 309 4 310 1
	40	8346	442	1599	198	3013	583	.225 6781	2 886	20		8 352 8 353 6 354 4
	50	8788	442	1400	199	3595	582	.225 3895	2 886	10		9 396 9 397 8 398 7
			442		199		583		2 886			
12	0	0.409 9230		0.912 1201		0.449 4178		2.225 1009		0	48	
	10	9673	443	1002	199	4761	583	.224 8124	2 885	50		Cosine
	20	0.410 0115	442	0804	198	5344	583	.224 5240	2 884	40		198 199 200
	30	0557	442	0605	199	5927	583	.224 2356	2 884	30		1 19 8 19 9 20 0
	40	0999	442	0406	199	6509	582	.223 9473	2 883	20		2 39 6 39 8 40 0
	50	1441	442	0207	199	7092	583	.223 6591	2 882	10		3 59 4 59 7 60 0
			442		199		583		2 882			4 79 2 79 6 80 0
13	0	0.410 1883		0.912 0008		0.449 7675		2.223 3709		0	47	
	10	2326	443	0.911 9809	199	8258	583	.223 0828	2 881	50		5 99 0 99 5 100 0
	20	2768	442	9611	198	8841	583	.222 7948	2 880	40		6 118 8 119 4 120 0
	30	3210	442	9412	199	9424	583	.222 5068	2 880	30		7 138 6 139 3 140 0
	40	3652	442	9213	199	0.450 0007	583	.222 2189	2 879	20		8 158 4 159 2 160 0
	50	4094	442	9014	199	0590	583	.221 9310	2 879	10		9 178 2 179 1 180 0
			442		199		583		2 878			
14	0	0.410 4536		0.911 8815		0.450 1173		2.221 6432		0	46	
	10	4978	442	8616	199	1756	583	.221 3555	2 877	50		Tangent
	20	5420	442	8417	199	2339	583	.221 0678	2 877	40		582 583 584
	30	5862	442	8218	199	2922	583	.220 7802	2 876	30		1 58 2 58 3 58 4
	40	6304	442	8019	199	3505	583	.220 4926	2 876	20		2 116 4 116 6 116 8
	50	6746	443	7820	200	4088	584	.220 2051	2 875	10		3 174 6 174 9 175 2
			442		200		584		2 874			4 232 8 233 2 233 6
15	0	0.410 7189		0.911 7620		0.450 4672		2.219 9177		0	45	
	10	7631	442	7421	199	5255	583	.219 6303	2 874	50		5 291 0 291 5 292 0
	20	8073	442	7222	199	5838	583	.219 3430	2 873	40		6 349 2 349 8 350 4
	30	8515	442	7023	199	6421	583	.219 0558	2 872	30		7 407 4 408 1 408 8
	40	8957	442	6824	199	7005	583	.218 7686	2 872	20		8 465 6 466 4 467 2
	50	9399	442	6625	200	7588	583	.218 4815	2 871	10		9 523 8 524 7 525 6
			442		200		583		2 871			
16	0	0.410 9841		0.911 6425		0.450 8171		2.218 1944		0	44	
	10	0.411 0283	442	6226	199	8755	584	.217 9074	2 870	50		Cotangent
	20	0724	441	6027	199	9338	583	.217 6205	2 869	40		2890 2880
	30	1166	442	5827	200	9921	583	.217 3336	2 869	30		1 289 0 288 0
	40	1608	442	5628	199	0.451 0505	584	.217 0468	2 868	20		2 578 0 576 0
	50	2050	442	5429	200	1088	584	.216 7600	2 868	10		3 867 0 864 0
			442		200		584		2 867			4 1156 0 1152 0
17	0	0.411 2492		0.911 5229		0.451 1672		2.216 4733		0	43	
	10	2934	442	5030	199	2255	583	.216 1867	2 866	50		5 1445 0 1440 0
	20	3376	442	4831	199	2839	584	.215 9001	2 865	40		6 1734 0 1728 0
	30	3818	442	4631	200	3422	583	.215 6136	2 865	30		7 2023 0 2016 0
	40	4260	442	4432	199	4006	584	.215 3272	2 864	20		8 2312 0 2304 0
	50	4702	442	4232	200	4589	583	.215 0408	2 864	10		9 2601 0 2592 0
			442		199		584		2 863			
18	0	0.411 5144		0.911 4033		0.451 5173		2.214 7545		0	42	
	10	5585	441	3833	200	5757	584	.214 4682	2 863	50		2870 2860
	20	6027	442	3634	199	6340	583	.214 1820	2 862	40		1 287 0 286 0
	30	6469	442	3434	200	6924	584	.213 8959	2 861	30		2 574 0 572 0
	40	6911	442	3235	199	7508	584	.213 6098	2 861	20		3 861 0 858 0
	50	7353	442	3035	200	8092	584	.213 3238	2 859	10		4 1148 0 1144 0
			442		200		584		2 859			5 1435 0 1430 0
19	0	0.411 7795		0.911 2835		0.451 8676		2.213 0379		0	41	
	10	8236	441	2636	199	9259	583	.212 7520	2 859	50		6 1722 0 1716 0
	20	8678	442	2436	200	9843	584	.212 4661	2 859	40		7 2009 0 2002 0
	30	9120	442	2236	200	0.452 0427	584	.212 1804	2 857	30		8 2296 0 2288 0
	40	9562	441	2037	199	1011	584	.211 8947	2 857	20		9 2583 0 2574 0
	50	0.412 0003	442	1837	200	1595	584	.211 6090	2 856	10		2850
			442		200		584		2 856			1 285 0
20	0	0.412 0445		0.911 1637		0.452 2179		2.211 3234		0	40	
												2 570 0
												3 855 0
												4 1140 0
												5 1425 0
												6 1710 0
												7 1995 0
												8 2280 0
												9 2565 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff.	Tangent	Diff.	"	'	Proportional Parts

24° 20'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
20	0	0.412 0445		0.911 1637		0.452 2179		2.211 3234		0	40	Sine
	10	0887	442	1437	200	2763	584	.211 0379	2 855	50		441 442
	20	1329	442	1238	199	3347	584	.210 7525	2 854	40		1 44 1 44 2
	30	1770	441	1038	200	3931	584	.210 4671	2 854	30		2 88 2 88 4
	40	2212	442	0838	200	4515	584	.210 1817	2 854	20		3 132 3 132 6
	50	2654	442	0638	200	5099	584	.209 8964	2 853	10		4 176 4 176 8
21	0	0.412 3096		0.911 0438		0.452 5683		2.209 6112		0	39	5 220 5 221 0
	10	3537	441	0238	200	6267	584	.209 3261	2 851	50		6 264 6 265 2
	20	3979	442	0038	200	6851	584	.209 0410	2 851	40		7 308 7 309 4
	30	4421	442	9838	200	7435	584	.208 7559	2 851	30		8 352 8 353 6
	40	4862	441	9638	200	8020	585	.208 4710	2 849	20		9 396 9 397 8
	50	5304	442	9438	200	8604	584	.208 1861	2 849	10		
22	0	0.412 5745		0.910 9238		0.452 9188		2.207 9012		0	38	Cosine
	10	6187	442	9038	200	9772	584	.207 6164	2 848	50		199 200 201
	20	6629	442	8838	200	10357	585	.207 3317	2 847	40		1 19 9 20 0 20 1
	30	7070	441	8638	200	10941	584	.207 0470	2 847	30		2 39 8 40 0 40 2
	40	7512	442	8438	200	11525	584	.206 7624	2 846	20		3 59 7 60 0 60 3
	50	7953	441	8238	200	12110	585	.206 4779	2 845	10		4 79 6 80 0 80 4
23	0	0.412 8395		0.910 8038		0.453 2694		2.206 1934		0	37	5 99 5 100 0 100 5
	10	8837	442	7838	200	3279	585	.205 9090	2 844	50		6 119 4 120 0 120 6
	20	9278	441	7638	200	3863	584	.205 6246	2 844	40		7 139 3 140 0 140 7
	30	9720	442	7437	201	4448	585	.205 3403	2 843	30		8 159 2 160 0 160 8
	40	0.413 0161		7237	200	5032	584	.205 0561	2 842	20		9 179 1 180 0 180 9
	50	0603	442	7037	200	5617	585	.204 7719	2 842	10		
24	0	0.413 1044		0.910 6837		0.453 6201		2.204 4878		0	36	Tangent
	10	1486	442	6636	201	6786	585	.204 2037	2 841	50		584 585 586
	20	1927	441	6436	200	7370	584	.203 9197	2 840	40		1 58 4 58 5 58 6
	30	2369	442	6236	200	7955	585	.203 6358	2 839	30		2 116 8 117 0 117 2
	40	2810	441	6035	201	8540	585	.203 3519	2 839	20		3 175 2 175 5 175 8
	50	3252	442	5835	200	9124	584	.203 0681	2 838	10		4 233 6 234 0 234 4
25	0	0.413 3693		0.910 5635		0.453 9709		2.202 7843		0	35	5 292 0 292 5 293 0
	10	4135	442	5434	201	0.454 0294	585	.202 5006	2 837	50		6 350 4 351 0 351 6
	20	4576	441	5234	200	0879	585	.202 2170	2 836	40		7 408 8 409 5 410 2
	30	5018	442	5033	201	1463	584	.201 9334	2 836	30		8 467 2 468 0 468 8
	40	5459	441	4833	200	2048	585	.201 6499	2 835	20		9 525 6 526 5 527 4
	50	5900	442	4632	201	2633	585	.201 3664	2 835	10		
26	0	0.413 6342		0.910 4432		0.454 3218		2.201 0831		0	34	Cotangent
	10	6783	441	4231	201	3803	585	.200 7997	2 834	50		2860 2850
	20	7225	442	4031	200	4388	585	.200 5165	2 834	40		1 286 0 285 0
	30	7666	441	3830	201	4973	585	.200 2332	2 833	30		2 572 0 570 0
	40	8107	442	3629	200	5558	585	.199 9501	2 833	20		3 858 0 855 0
	50	8549	441	3429	201	6143	584	.199 6670	2 831	10		4 1141 0 1140 0
27	0	0.413 8990		0.910 3228		0.454 6728		2.199 3840		0	33	5 1430 0 1425 0
	10	9431	442	3027	201	7313	585	.199 1010	2 830	50		6 1716 0 1710 0
	20	9873	441	2827	200	7898	585	.198 8181	2 829	40		7 2002 0 1995 0
	30	0.414 0314		2626	201	8483	585	.198 5352	2 829	30		8 2288 0 2280 0
	40	0755	442	2425	200	9068	585	.198 2525	2 827	20		9 2574 0 2565 0
	50	1197	441	2225	201	9653	585	.197 9697	2 826	10		
28	0	0.414 1638		0.910 2024		0.455 0238		2.197 6871		0	32	2840 2830
	10	2079	441	1823	201	0824	586	.197 4044	2 827	50		1 284 0 283 0
	20	2520	442	1622	201	1409	585	.197 1219	2 825	40		2 568 0 566 0
	30	2962	441	1421	201	1994	585	.196 8394	2 825	30		3 852 0 849 0
	40	3403	441	1220	201	2579	585	.196 5570	2 824	20		4 1136 0 1132 0
	50	3844	441	1020	201	3165	586	.196 2746	2 824	10		5 1420 0 1415 0
29	0	0.414 4285		0.910 0819		0.455 3750		2.195 9923		0	31	6 1704 0 1698 0
	10	4726	441	0618	201	4335	585	.195 7101	2 822	50		7 1988 0 1981 0
	20	5168	442	0417	201	4921	585	.195 4279	2 822	40		8 2272 0 2264 0
	30	5609	441	0216	201	5506	586	.195 1458	2 821	30		9 2556 0 2547 0
	40	6050	441	0015	201	6092	585	.194 8637	2 821	20		
	50	6491	441	0909 9814	201	6677	586	.194 5817	2 820	10		2820
30	0	0.414 6932		0.909 9613		0.455 7263		2.194 2997		0	30	1 282 0
												2 564 0
												3 846 0
												4 1128 0
												5 1410 0
												6 1692 0
												7 1974 0
												8 2256 0
												9 2538 0
												Proportional Parts

65° 30'

24° 30'

	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
30	0	0.414 6932		0.909 9613		0.455 7263		2.194 2997		0	30	
	10	7374	442	9412	201	7848	585	.194 0178	2 819	50		Sine
	20	7815	441	9211	201	8434	586	.193 7360	2 818	40		440 441 442
	30	8256	441	9009	202	9019	585	.193 4543	2 817	30		1 44 0 44 1 44 2
	40	8697	441	8808	201	9605	586	.193 1725	2 818	20		2 88 0 88 2 88 4
	50	9138	441	8607	201	0.456 0190	585	.192 8909	2 816	10		3 132 0 132 3 132 6
31	0	0 414 9579		0.909 8406		0.456 0776		2 192 6093		0	29	4 176 0 176 4 176 8
	10	0 415 0020	441	8205	201	1362	586	.192 3278	2 815	50		5 220 0 220 5 221 0
	20	0461	441	8004	201	1947	585	.192 0463	2 815	40		6 264 0 264 6 265 2
	30	0902	441	7802	202	2533	586	.191 7649	2 814	30		7 308 0 308 7 309 4
	40	1344	442	7601	201	3119	586	.191 4836	2 813	20		8 352 0 352 8 353 6
	50	1785	441	7400	201	3705	586	.191 2023	2 813	10		9 396 0 396 9 397 8
32	0	0.415 2226		0 909 7199		0.456 4290		2 190 9210		0	28	Cosine
	10	2667	441	6997	202	4876	586	.190 6399	2 811	50		201 202 203
	20	3108	441	6796	201	5462	586	.190 3588	2 811	40		1 20 1 20 2 20 3
	30	3549	441	6595	202	6048	586	.190 0777	2 810	30		2 40 2 40 4 40 6
	40	3990	441	6393	202	6634	586	.189 7967	2 809	20		3 60 3 60 6 60 9
	50	4431	441	6192	202	7220	586	.189 5158	2 809	10		4 80 4 80 8 81 2
33	0	0 415 4872		0.909 6990		0 456 7806		2.189 2349		0	27	5 100 5 101 0 101 5
	10	5313	441	5789	201	8392	586	.188 9541	2 808	50		6 120 6 121 2 121 8
	20	5754	441	5587	202	8978	586	.188 6734	2 807	40		7 140 7 141 4 142 1
	30	6195	441	5386	202	9564	586	.188 3927	2 807	30		8 160 8 161 6 162 4
	40	6636	441	5184	201	0 457 0150	586	.188 1120	2 807	20		9 180 9 181 8 182 7
	50	7077	440	4983	202	0736	586	.187 8315	2 805	10		
34	0	0.415 7517		0.909 4781		0 457 1322		2 187 5510		0	26	Tangent
	10	7958	441	4580	201	1908	586	.187 2705	2 805	50		585 586 587
	20	8399	441	4378	202	2494	586	.186 9901	2 804	40		1 58 5 58 6 58 7
	30	8840	441	4177	201	3081	587	.186 7098	2 803	30		2 117 0 117 2 117 4
	40	9281	441	3975	202	3667	586	.186 4295	2 803	20		3 175 5 175 8 176 1
	50	9722	441	3773	202	4253	586	.186 1493	2 802	10		4 231 0 234 4 234 8
35	0	0.416 0163		0.909 3572		0 457 4839		2 185 8691		0	25	5 292 5 293 0 293 5
	10	0604	441	3370	202	5426	587	.185 5890	2 801	50		6 351 0 351 6 352 2
	20	1045	441	3168	202	6012	586	.185 3090	2 800	40		7 409 5 410 2 410 9
	30	1485	440	2966	201	6598	586	.185 0290	2 800	30		8 468 0 468 8 469 6
	40	1926	441	2765	202	7185	587	.184 7491	2 799	20		9 526 5 527 4 528 3
	50	2367	441	2563	202	7771	586	.184 4692	2 799	10		
36	0	0.416 2808		0.909 2361		0.457 8357		2.184 1894		0	24	Cotangent
	10	3249	441	2159	202	8944	587	.183 9097	2 797	50		2820 2810
	20	3690	441	1957	202	9530	586	.183 6300	2 797	40		1 282 0 281 0
	30	4130	440	1756	201	0.458 0117	587	.183 3504	2 796	30		2 564 0 562 0
	40	4571	441	1554	202	0703	586	.183 0708	2 796	20		3 846 0 843 0
	50	5012	441	1352	202	1290	587	.182 7913	2 795	10		4 1128 0 1124 0
37	0	0.416 5453		0.909 1150		0.458 1877		2.182 5119		0	23	5 1410 0 1405 0
	10	5893	440	0948	202	2463	586	.182 2325	2 794	50		6 1602 0 1686 0
	20	6334	441	0746	202	3050	587	.181 9532	2 793	40		7 1974 0 1967 0
	30	6775	441	0544	202	3636	586	.181 6739	2 793	30		8 2256 0 2248 0
	40	7216	440	0342	202	4223	587	.181 3947	2 792	20		9 2538 0 2529 0
	50	7656	441	0140	202	4810	587	.181 1155	2 791	10		
38	0	0.416 8097		0.908 9938		0.458 5397		2.180 8364		0	22	2800 2790
	10	8538	441	9736	202	5983	586	.180 5574	2 790	50		1 280 0 279 0
	20	8978	440	9534	203	6570	587	.180 2784	2 789	40		2 560 0 558 0
	30	9419	441	9331	203	7157	587	.179 9995	2 789	30		3 840 0 837 0
	40	9860	441	9129	202	7744	587	.179 7207	2 788	20		4 1120 0 1116 0
	50	0.417 0300	441	8927	202	8331	587	.179 4419	2 788	10		5 1400 0 1395 0
39	0	0.417 0741		0.908 8725		0.458 8918		2.179 1631		0	21	6 1680 0 1674 0
	10	1182	441	8523	202	9504	586	.178 8845	2 786	50		7 1960 0 1953 0
	20	1622	440	8320	203	0.459 0091	587	.178 6058	2 787	40		8 2240 0 2232 0
	30	2063	441	8118	202	0678	587	.178 3273	2 785	30		9 2520 0 2511 0
	40	2503	440	7916	202	1265	587	.178 0488	2 785	20		
	50	2944	441	7714	203	1852	587	.177 7703	2 785	10		2780
40	0	0.417 3385		0.908 7511		0.459 2439		2.177 4920		0	20	1 278 0
												2 556 0
												3 834 0
												4 1112 0
												5 1390 0
												6 1668 0
												7 1946 0
												8 2224 0
												9 2502 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	"	Proportional Parts

65° 20'

24° 40'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
40	0	0.417 3385		0.908 7611		0.459 2439		2.177 4920		0	20	
	10	3825	440	7309	202	3027	588	.177 2136	2 784	50		Sine
	20	4266	441	7107	202	3614	587	.176 9354	2 782	40		440 441
	30	4706	440	6904	203	4201	587	.176 6572	2 782	30		1 44 0 44 1
	40	5147	441	6702	202	4788	587	.176 3790	2 782	20		2 88 0 88 2
	50	5587	440	6499	203	5375	587	.176 1009	2 781	10		3 132 0 132 3
			441		202		587		2 780			4 176 0 176 4
41	0	0 417 6028		0.908 6297		0.459 6962		2.175 8229		0	19	
	10	6468	440	6094	203	6550	588	.175 5449	2 780	50		5 220 0 220 5
	20	6909	441	5892	202	7137	587	.175 2670	2 779	40		6 264 0 264 6
	30	7349	440	5689	203	7724	587	.174 9891	2 779	30		7 308 0 308 7
	40	7790	441	5487	202	8311	587	.174 7114	2 777	20		8 352 0 352 8
	50	8230	440	5284	203	8899	588	.174 4336	2 778	10		9 396 0 396 9
			441		202		587		2 777			
42	0	0 417 8671		0.908 5082		0.459 9486		2.174 1559		0	18	
	10	9111	440	4879	203	0 460 0073	587	.173 8783	2 776	50		Cosine
	20	9552	441	4677	202		588	.173 6007	2 776	40		202 203 204
	30	9992	440	4474	203		587	.173 3232	2 775	30		1 20 2 20 3 20 4
	40	0.418 0432	440	4271	203		588	.173 0458	2 774	20		2 40 4 40 6 40 8
	50	0873	441	4069	202		587	.172 7684	2 774	10		3 60 6 60 9 61 2
			440		203		588		2 773			4 80 8 81 2 81 6
43	0	0 418 1313		0.908 3866		0.460 3011		2.172 4911		0	17	
	10	1754	441	3663	203		587	.172 2138	2 773	50		5 101 0 101 5 102 0
	20	2194	440	3460	203		588	.171 9366	2 772	40		6 121 2 121 8 122 4
	30	2634	440	3258	202		588	.171 6594	2 772	30		7 141 4 142 1 142 8
	40	3075	441	3055	203		587	.171 3824	2 770	20		8 161 6 162 4 163 2
	50	3515	440	2852	203		588	.171 1053	2 771	10		9 181 8 182 7 183 6
			441		203		588		2 770			
44	0	0.418 3966		0.908 2649		0.460 6637		2.170 8283		0	16	
	10	4396	440	2446	203		587	.170 5514	2 769	50		Tangent
	20	4836	440	2243	203		588	.170 2746	2 768	40		587 588 589
	30	5276	440	2041	202		588	.169 9977	2 769	30		1 58 7 58 8 58 9
	40	5717	441	1838	203		587	.169 7210	2 767	20		2 117 4 117 6 117 8
	50	6157	440	1635	203		588	.169 4443	2 767	10		3 176 1 176 4 176 7
			440		203		588		2 766			4 234 8 235 2 235 6
45	0	0 418 6597		0.908 1432		0.461 0063		2.169 1677		0	15	
	10	7038	441	1229	203		588	.168 8911	2 766	50		5 294 5 294 0 294 5
	20	7478	440	1026	203		588	.168 6146	2 765	40		6 352 2 352 8 353 4
	30	7918	440	0823	203		588	.168 3381	2 765	30		7 410 9 411 6 412 3
	40	8358	440	0620	203		588	.168 0617	2 764	20		8 469 6 470 4 471 2
	50	8799	441	0417	203		588	.167 7854	2 763	10		9 528 3 529 2 530 1
			440		203		588		2 763			
46	0	0 418 9239		0.908 0214		0.461 3591		2.167 5091		0	14	
	10	9679	440	0010	204		588	.167 2329	2 762	50		Cotangent
	20	0 419 0119	440	0 907 9807	203		588	.166 9567	2 762	40		2790 2780
	30	0559	440	9604	203		588	.166 6806	2 761	30		1 558 0 558 0
	40	1000	441	9401	203		588	.166 4046	2 760	20		2 837 0 834 0
	50	1440	440	9198	203		588	.166 1286	2 760	10		3 1116 0 1112 0
			440		203		588		2 759			4 1395 0 1390 0
47	0	0 419 1880		0.907 8995		0.461 7119		2.165 8527		0	13	
	10	2320	440	8791	204		588	.165 5768	2 759	50		5 1674 0 1668 0
	20	2760	440	8588	203		588	.165 3010	2 758	40		6 1953 0 1946 0
	30	3200	440	8385	203		588	.165 0252	2 757	30		7 2242 0 2234 0
	40	3641	441	8181	204		588	.164 7495	2 756	20		8 2511 0 2502 0
	50	4081	440	7978	203		588	.164 4739	2 756	10		
			440		203		589		2 756			2770 2760
48	0	0 419 4521		0.907 7776		0.462 0649		2.164 1983		0	12	
	10	4961	440	7571	204		588	.163 9228	2 755	50		1 277 0 276 0
	20	5401	440	7368	203		588	.163 6473	2 755	40		2 554 0 552 0
	30	5841	440	7165	203		589	.163 3719	2 754	30		3 831 0 828 0
	40	6281	440	6961	204		588	.163 0965	2 754	20		4 1108 0 1104 0
	50	6721	440	6758	204		588	.162 8212	2 752	10		5 1385 0 1380 0
			440		204		588		2 752			6 1682 0 1656 0
49	0	0.419 7161		0.907 6564		0.462 4179		2.162 5460		0	11	
	10	7601	440	6351	203		589	.162 2708	2 752	50		7 1939 0 1932 0
	20	8041	440	6147	204		588	.161 9957	2 751	40		8 2216 0 2208 0
	30	8481	440	5944	203		589	.161 7206	2 750	30		9 2493 0 2484 0
	40	8921	440	5740	204		588	.161 4456	2 750	20		
	50	9361	440	5537	204		588	.161 1707	2 749	10		2750
			440		204		588		2 749			1 275 0
50	0	0.419 9801		0.907 5333		0.462 7710		2.160 8958		0	10	
												2 550 0
												3 825 0
												4 1100 0
												5 1375 0
												6 1650 0
												7 1925 0
												8 2200 0
												9 2475 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff			Proportional Parts

65° 10'

24° 50'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
50	0	0.419 9801		0.907 5333		0.462 7710		2.160 8958		0	10	
	10	0.420 0241	440	5129	204	8299	589	.160 6209	2 749	50		Sine
	20	0681	440	4926	203	8888	589	.160 3462	2 748	40		439 440
	30	1121	440	4722	204	9477	589	.160 0714	2 747	30		
	40	1561	440	4518	204	0.463 0065	588	.159 7968	2 746	20		1 43 9 44 0
	50	2001	440	4315	203	0654	589	.159 5222	2 746	10		2 87 8 88 0
			440		204		589		2 746			3 131 7 132 0
												4 175 6 176 0
51	0	0.420 2441		0.907 4111		0.463 1243		2.159 2476		0	9	5 219 5 220 0
	10	2881	440	3907	204	1832	589	.158 9731	2 745	50		6 263 4 264 0
	20	3321	440	3703	204	2420	588	.158 6987	2 744	40		7 307 3 308 0
	30	3761	440	3500	203	3009	589	.158 4243	2 744	30		8 351 2 352 0
	40	4201	440	3296	204	3598	589	.158 1500	2 743	20		9 395.1 396 0
	50	4641	439	3092	204	4187	589	.157 8758	2 743	10		
52	0	0.420 5080		0.907 2888		0.463 4776		2.157 6015		0	8	Cosine
	10	5520	440	2684	204	5365	589	.157 3274	2 741	50		[203 204 205
	20	5960	440	2480	204	5954	589	.157 0533	2 741	40		1 20 3 20 4 20 5
	30	6400	440	2276	204	6543	589	.156 7793	2 740	30		2 40 6 40 8 41 0
	40	6840	440	2072	204	7132	589	.156 5053	2 740	20		3 60 9 61 2 61 5
	50	7280	439	1868	203	7721	589	.156 2314	2 739	10		4 81 2 81 6 82 0
												5 101 5 102 0 102 5
53	0	0.420 7719		0.907 1665		0.463 8310		2.155 9575		0	7	6 121 8 122 4 123 0
	10	8159	440	1460	205	8899	589	.155 6837	2 738	50		7 142 1 142 8 143 5
	20	8599	440	1256	204	9489	590	.155 4100	2 737	40		8 162 4 163 2 164 0
	30	9039	440	1052	204	0.464 0078	589	.155 1363	2 737	30		9 182 7 183 6 184 5
	40	9479	439	0848	204	0667	589	.154 8627	2 736	20		
	50	9918	440	0644	204	1256	589	.154 5891	2 736	10		
54	0	0.421 0358		0.907 0440		0.464 1845		2.154 3156		0	6	Tangent
	10	0798	440	0236	204	2435	590	.154 0421	2 735	50		588 589 590
	20	1238	440	0032	204	3024	589	.153 7687	2 734	40		1 58 8 58 9 59 0
	30	1677	439	0.906 9828	204	3613	589	.153 4954	2 733	30		2 117 6 117 8 118 0
	40	2117	440	9623	205	4203	590	.153 2221	2 733	20		3 176 4 176 7 177 0
	50	2557	439	9419	204	4792	589	.152 9489	2 732	10		4 235 2 235 6 236 0
												5 294 0 294 5 295 0
55	0	0.421 2996		0.906 9215		0.464 5382		2.152 6757		0	5	6 352 8 353 4 354 0
	10	3436	440	9011	204	5971	589	.152 4026	2 731	50		7 411 6 412 3 413 0
	20	3876	440	8806	205	6561	590	.152 1295	2 731	40		8 470 4 471 2 472 0
	30	4315	439	8602	204	7150	589	.151 8565	2 730	30		9 529 2 530.1 531 0
	40	4755	440	8398	205	7740	590	.151 5836	2 729	20		
	50	5195	439	8193	204	8329	589	.151 3107	2 729	10		
56	0	0.421 5634		0.906 7989		0.464 8919		2.151 0378		0	4	Cotangent
	10	6074	440	7785	204	9508	589	.150 7651	2 727	50		2750 2740
	20	6514	440	7580	205	0.465 0098	590	.150 4924	2 727	40		1 275 0 274 0
	30	6953	439	7376	204	0688	590	.150 2197	2 727	30		2 550 0 548 0
	40	7393	439	7171	205	1277	589	.149 9471	2 726	20		3 825 0 822 0
	50	7832	440	6967	204	1867	590	.149 6745	2 726	10		4 1100 0 1096 0
												5 1375 0 1370 0
57	0	0.421 8272		0.906 6762		0.465 2457		2.149 4021		0	3	6 1650 0 1644 0
	10	8712	440	6558	204	3046	589	.149 1296	2 725	50		7 1925 0 1918 0
	20	9151	439	6353	205	3636	590	.148 8572	2 724	40		8 2200 0 2192 0
	30	9591	440	6149	204	4226	590	.148 5849	2 723	30		9 2475 0 2466 0
	40	0.422 0030	439	5944	205	4816	590	.148 3127	2 722	20		
	50	0470	440	5740	204	5406	590	.148 0405	2 722	10		
58	0	0.422 0909		0.906 5535		0.465 5996		2.147 7683		0	2	2730 2720
	10	1349	440	5330	205	6586	590	.147 4962	2 721	50		1 273 0 272 0
	20	1788	439	5126	204	7176	590	.147 2242	2 720	40		2 546 0 544 0
	30	2228	440	4921	205	7766	590	.146 9522	2 720	30		3 819 0 816 0
	40	2667	439	4716	204	8356	590	.146 6803	2 719	20		4 1092 0 1088 0
	50	3107	439	4512	205	8946	590	.146 4084	2 718	10		5 1365 0 1360 0
												6 1638 0 1632 0
59	0	0.422 3546		0.906 4307		0.465 9536		2.146 1366		0	1	7 1911 0 1904 0
	10	3986	440	4102	205	0.466 0126	590	.145 8648	2 718	50		8 2184 0 2176 0
	20	4425	439	3897	205	0716	590	.145 5931	2 717	40		9 2457 0 2448 0
	30	4864	440	3692	204	1306	590	.145 3215	2 716	30		
	40	5304	439	3488	205	1896	590	.145 0499	2 716	20		
	50	5743	440	3283	205	2486	591	.144 7784	2 715	10		
60	0	0.422 6183		0.906 3078		0.466 3077		2.144 5069		0	0	2710
												1 271 0
												2 542 0
												3 813 0
												4 1084 0
												5 1355 0
												6 1620 0
												7 1897 0
												8 2168 0
												9 2439 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

65° 0'

25° 0'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
0	0	0.422 6183		0.906 3078		0.466 3077		2.144 5069		0	60	
	10	6622	439	2873	205	3667	590	.144 2355	2 714	50		Sine
	20	7061	439	2668	205	4257	590	.143 9641	2 714	40		438 439 440
	30	7501	440	2463	205	4847	590	.143 6928	2 713	30		1 43 8 43 9 44 0
	40	7940	439	2258	205	5438	591	.143 4216	2 712	20		2 87 6 87 8 88 0
	50	8379	439	2053	205	6028	590	.143 1504	2 712	10		3 131 4 131 7 132 0
			440		205		590		2 711			4 175 2 175 6 176 0
1	0	0.422 8819		0.906 1848		0.466 6618		2.142 8793		0	59	
	10	9258	439	1643	205	7209	591	.142 6082	2 711	50		5 219 0 219 5 220 0
	20	9697	439	1438	205	7799	590	.142 3372	2 710	40		6 262 8 263 4 264 0
	30	0.423 0137	440	1233	205	8390	591	.142 0662	2 710	30		7 306 6 307 3 308 0
	40	0576	439	1028	205	8980	590	.141 7953	2 709	20		8 350 4 351 2 352 0
	50	1015	439	0823	205	9571	591	.141 5245	2 708	10		9 394 2 395 1 396 0
			440		205		590		2 708			
2	0	0.423 1455		0.906 0618		0.467 0161		2.141 2537		0	58	
	10	1894	439	0412	206	0752	591	.140 9829	2 708	50		Cosine
	20	2333	439	0207	205	1342	590	.140 7122	2 707	40		205 206 207
	30	2772	440	0002	205	1933	591	.140 4416	2 706	30		1 20 5 20 6 20 7
	40	3212	439	0.905 9797	205	2524	591	.140 1710	2 706	20		2 41 0 41 2 41 4
	50	3651	439	9592	206	3114	590	.139 9005	2 705	10		3 61 5 61 8 62 1
			439		206		591		2 704			4 82 0 82 4 82 8
3	0	0.423 4090		0.905 9386		0.467 3705		2.139 6201		0	57	
	10	4529	439	9181	205	4296	591	.139 3597	2 704	50		5 102 5 103 0 103 5
	20	4968	439	8976	205	4887	591	.139 0893	2 704	40		6 125 0 123 6 124 2
	30	5408	440	8770	206	5477	590	.138 8190	2 703	30		7 143 5 144 2 144 9
	40	5847	439	8565	205	6068	591	.138 5488	2 702	20		8 164 0 164 8 165 6
	50	6286	439	8360	205	6659	591	.138 2786	2 702	10		9 184 5 185 4 186 3
			439		206		591		2 701			
4	0	0.423 6725		0.905 8154		0.467 7250		2.138 0085		0	56	
	10	7164	439	7949	205	7841	591	.137 7384	2 701	50		Tangent
	20	7603	439	7744	205	8432	591	.137 4684	2 700	40		590 591 592
	30	8043	440	7538	206	9023	591	.137 1985	2 699	30		1 59 0 59 1 59 2
	40	8482	439	7333	205	9614	591	.136 9286	2 699	20		2 118 0 118 2 118 4
	50	8921	439	7127	206	0.468 0205	591	.136 6587	2 699	10		3 177 0 177 3 177 6
			439		205		591		2 697			4 236 0 236 4 236 8
5	0	0.423 9360		0.905 6922		0.468 0796		2.136 3890		0	55	
	10	9799	439	6716	206	1387	591	.136 1192	2 698	50		5 295 0 295 5 296 0
	20	0.424 0238	439	6510	206	1978	591	.135 8495	2 697	40		6 354 0 354 6 355 2
	30	0677	439	6305	205	2569	591	.135 5799	2 696	30		7 413 0 413 7 414 4
	40	1116	439	6099	206	3160	591	.135 3104	2 695	20		8 472 0 472 8 473 6
	50	1555	439	5894	205	3751	591	.135 0409	2 695	10		9 531 0 531 9 532 8
			439		206		591		2 695			
6	0	0.424 1994		0.905 5688		0.468 4342		2.134 7714		0	54	
	10	2433	439	5482	206	4934	592	.134 5020	2 694	50		Cotangent
	20	2872	439	5277	205	5525	591	.134 2327	2 693	40		2720 2710
	30	3311	439	5071	206	6116	591	.133 9634	2 693	30		1 272 0 271 0
	40	3750	439	4865	206	6707	591	.133 6942	2 692	20		2 544 0 542 0
	50	4189	439	4659	205	7299	592	.133 4250	2 692	10		3 816 0 813 0
			439		206		591		2 691			4 1088 0 1084 0
7	0	0.424 4628		0.905 4454		0.468 7890		2.133 1559		0	53	
	10	5067	439	4248	206	8481	591	.132 8868	2 691	50		5 1390 0 1355 0
	20	5506	439	4042	206	9073	592	.132 6178	2 690	40		6 1632 0 1626 0
	30	5945	439	3836	206	9664	591	.132 3489	2 689	30		7 1904 0 1897 0
	40	6384	439	3630	206	0.469 0256	592	.132 0800	2 689	20		8 2176 0 2168 0
	50	6823	439	3424	205	0847	591	.131 8111	2 688	10		9 2448 0 2439 0
			439		206		592					
8	0	0.424 7262		0.905 3219		0.469 1439		2.131 5423		0	52	
	10	7701	439	3013	206	2030	591	.131 2736	2 687	50		2700 2690
	20	8140	439	2807	206	2622	592	.131 0049	2 687	40		1 270 0 269 0
	30	8579	439	2601	206	3213	591	.130 7363	2 686	30		2 540 0 538 0
	40	9017	438	2395	206	3805	592	.130 4678	2 685	20		3 810 0 807 0
	50	9456	439	2189	206	4397	592	.130 1993	2 685	10		4 1080 0 1076 0
			439		206		591		2 685			5 1350 0 1345 0
9	0	0.424 9895		0.905 1983		0.469 4988		2.129 9308		0	51	
	10	0.425 0334	439	1777	206	5580	592	.129 6624	2 684	50		6 1620 0 1614 0
	20	0773	439	1571	207	6172	592	.129 3941	2 683	40		7 1890 0 1883 0
	30	1212	439	1364	206	6763	592	.129 1258	2 683	30		8 2160 0 2152 0
	40	1651	438	1158	206	7355	592	.128 8576	2 682	20		9 2430 0 2421 0
	50	2089	438	0952	206	7947	592	.128 5894	2 682	10		2680
			439		206		592		2 681			1 268 0
10	0	0.425 2528		0.905 0746		0.469 8539		2.128 3213		0	50	
												2 536 0
												3 804 0
												4 1072 0
												5 1340 0
												6 1608 0
												7 1876 0
												8 2144 0
												9 2412 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	"	Proportional Parts

64° 50'

25° 10'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
10	0	0 425 2528		0.905 0746		0.469 8539		2.128 3213		0	50	
	10	2967	439	0540	206	9131	592	.128 0532	2 681	50		Sine
	20	3406	439	0334	206	9722	591	.127 7852	2 680	40		438 439
	30	3844	438	0127	207	0 470 0314	592	.127 5173	2 679	30		1 43 8 43 9
	40	4283	439	0 904 9921	206	0906	592	.127 2494	2 679	20		2 87 6 87 8
	50	4722	439	9715	206	1498	592	.126 9815	2 679	10		3 131 4 131 7
									2 678			4 175 2 175 6
11	0	0 425 5161		0.904 9509		0.470 2090		2.126 7137		0	49	
	10	5599	438	9302	207	2682	592	.126 4460	2 677	50		5 219 0 219 5
	20	6038	439	9096	206	3274	592	.126 1783	2 677	40		6 282 8 283 4
	30	6477	439	8890	206	3866	592	.125 9107	2 676	30		7 306 6 307 3
	40	6916	439	8683	207	4459	593	.125 6431	2 676	20		8 350 4 351 2
	50	7354	438	8477	206	5051	592	.125 3756	2 676	10		9 394 2 395 1
			439				592		2 675			
12	0	0 425 7793		0.904 8271		0.470 5643		2.125 1082		0	48	
	10	8232	439	8064	207	6235	592	.124 8408	2 674	50		Cosine
	20	8670	438	7858	206	6827	592	.124 5734	2 674	40		206 207 208
	30	9109	439	7651	207	7419	593	.124 3061	2 673	30		1 20 6 20 7 41 6
	40	9548	439	7445	206	8012	593	.124 0389	2 672	20		2 41 2 41 4 61 8
	50	9986	438	7238	207	8604	592	.123 7717	2 672	10		3 61 8 62 1 62 4
			439		206		592		2 671			4 82 4 82 8 83 2
13	0	0.426 0425		0.904 7032		0.470 9196		2.123 5046		0	47	
	10	0863	438	6825	207	9789	593	.123 2375	2 671	50		5 103 0 103 5 104 0
	20	1302	439	6618	207	0 471 0381	592	.122 9705	2 670	40		6 124 6 124 2 124 8
	30	1741	439	6412	206	0973	592	.122 7036	2 669	30		7 141 2 144 0 145 6
	40	2179	438	6205	207	1566	593	.122 4367	2 669	20		8 161 8 165 6 166 4
	50	2618	439	5999	206	2158	592	.122 1698	2 669	10		9 185 4 186 3 187 2
			438		207		593		2 668			
14	0	0 426 3056		0.904 5792		0.471 2751		2.121 9030		0	46	
	10	3495	439	5585	207	3343	592	.121 6363	2 667	50		Tangent
	20	3933	438	5379	206	3936	593	.121 3696	2 667	40		591 592
	30	4372	439	5172	207	4528	592	.121 1030	2 666	30		1 59 1 59 2
	40	4810	438	4965	207	5121	593	.120 8364	2 666	20		2 118 2 118 4
	50	5249	439	4758	207	5714	593	.120 5699	2 665	10		3 177 3 177 6
			438		207		592		2 665			4 236 4 236 8
15	0	0.426 5687		0.904 4551		0.471 6306		2.120 3034		0	45	
	10	6126	439	4345	206	6899	593	.120 0370	2 664	50		5 295 5 296 0
	20	6564	438	4138	207	7492	593	.119 7706	2 664	40		6 354 6 355 2
	30	7003	439	3931	207	8084	592	.119 5043	2 663	30		7 413 7 414 4
	40	7441	438	3724	207	8677	593	.119 2381	2 662	20		8 472 8 473 6
	50	7880	439	3517	207	9270	593	.118 9719	2 662	10		9 531 9 532 8
			438		207		593		2 662			
16	0	0 426 8318		0.904 3310		0.471 9863		2.118 7057		0	44	
	10	8757	439	3103	207	0 472 0455	592	.118 4397	2 660	50		593 594
	20	9195	438	2896	207	1048	593	.118 1736	2 661	40		1 59 3 59 4
	30	9633	438	2689	207	1641	593	.117 9077	2 659	30		2 118 6 118 8
	40	0 427 0072	439	2482	207	2234	593	.117 6417	2 660	20		3 177 9 178 2
	50	0510	438	2275	207	2827	593	.117 3759	2 658	10		4 237 2 237 6
			439		207		593		2 658			5 296 5 297 0
17	0	0 427 0949		0.904 2068		0.472 3420		2.117 1101		0	43	
	10	1387	438	1861	207	4013	593	.116 8443	2 657	50		Cotangent
	20	1825	439	1654	207	4606	593	.116 5786	2 656	40		2680 2670
	30	2264	438	1447	207	5199	593	.116 3130	2 656	30		1 268 0 267 0
	40	2702	438	1240	207	5792	593	.116 0474	2 656	20		2 536 0 534 0
	50	3140	439	1033	208	6385	593	.115 7818	2 654	10		3 801 0 801 0
												4 1072 0 1068 0
18	0	0.427 3579		0.904 0825		0.472 6978		2.115 5164		0	42	
	10	4017	438	0618	207	7572	594	.115 2509	2 655	50		5 1340 0 1335 0
	20	4455	439	0411	207	8165	593	.114 9856	2 654	40		6 1608 0 1602 0
	30	4894	439	0204	207	8758	593	.114 7202	2 653	30		7 1876 0 1869 0
	40	5332	438	0 903 9997	207	9351	593	.114 4550	2 652	20		8 2144 0 2136 0
	50	5770	438	9789	208	9944	594	.114 1898	2 652	10		9 2412 0 2403 0
			439		207				2 652			2660 2650
19	0	0.427 6208		0.903 9582		0.473 0538		2.113 9246		0	41	
	10	6647	439	9375	207	1131	593	.113 6595	2 651	50		1 266 0 265 0
	20	7085	438	9167	208	1724	593	.113 3945	2 650	40		2 532 0 530 0
	30	7523	438	8960	207	2318	594	.113 1295	2 650	30		3 798 0 795 0
	40	7961	438	8753	207	2911	593	.112 8645	2 650	20		4 1064 0 1060 0
	50	8399	439	8545	208	3505	594	.112 5996	2 649	10		5 1330 0 1325 0
					207		593		2 648			6 1596 0 1590 0
20	0	0.427 8838		0.903 8338		0.473 4098		2.112 3348		0	40	
												7 1862 0 1855 0
												8 2128 0 2120 0
												9 2394 0 2385 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff.	"	'	Proportional Parts

64° 40'

25° 20'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
20	0	0.427 8838	438	0.903 8338	208	0.473 4098	593	2.112 3348	2 648	0	40	
	10	9276	438	8130	208	4691	594	112 0700	2 647	50		Sine
	20	9714	438	7923	207	5285	594	.111 8053	2 647	40		437 438 439
	30	0.428 0152	438	7715	208	5879	594	.111 5406	2 646	30		1 43 7 43 8 43 9
	40	0590	438	7508	207	6472	593	.111 2760	2 645	20		2 87 4 87 6 87 8
	50	1028	439	7300	208	7066	594	.111 0115	2 645	10		3 131 1 131 4 131 7
					207		593					4 171 8 175 2 175 6
21	0	0.428 1467	438	0.903 7093	208	0.473 7659	594	2.110 7470	2 645	0	39	
	10	1905	438	6885	208	8253	594	.110 4825	2 644	50		5 218 5 219 0 219 5
	20	2343	438	6677	207	8847	593	.110 2181	2 643	40		6 262 2 262 8 263 4
	30	2781	438	6470	208	9440	594	.109 9538	2 643	30		7 305 9 306 6 307 3
	40	3219	438	6262	207	0 474 0034	594	.109 6895	2 643	20		8 349 6 350 4 351 2
	50	3657	438	6055	208	0628	594	.109 4252	2 641	10		9 393 3 394 2 395 1
					207		593					
22	0	0.428 4095	438	0.903 5847	208	0.474 1222	593	2.109 1611	2 642	0	38	
	10	4533	438	5639	208	1815	594	.108 8969	2 640	50		Cosine
	20	4971	438	5431	207	2409	594	.108 6329	2 640	40		207 208 209
	30	5409	438	5224	208	3003	594	.108 3689	2 640	30		1 20 7 20 8 20 9
	40	5847	438	5016	207	3597	594	.108 1049	2 639	20		2 41 4 41 6 41 8
	50	6285	438	4808	208	4191	594	.107 8410	2 639	10		3 62 1 62 4 62 7
					207		593		2 639			4 82 8 83 2 83 6
23	0	0.428 6723	438	0.903 4600	208	0.474 4785	594	2.107 5771	2 638	0	37	
	10	7161	438	4392	207	5379	594	.107 3133	2 637	50		5 103 5 104 0 104 5
	20	7599	438	4185	208	5973	594	.107 0496	2 637	40		6 124 2 124 8 125 4
	30	8037	438	3977	207	6567	594	.106 7859	2 637	30		7 144 9 145 6 146 3
	40	8475	438	3769	208	7161	594	.106 5222	2 637	20		8 165 6 166 1 167 2
	50	8913	438	3561	207	7755	594	.106 2586	2 636	10		9 186 3 187 2 188 1
					208		594		2 635			
24	0	0 428 9351	438	0.903 3353	208	0.474 8349	594	2.105 9951	2 635	0	36	
	10	9789	438	3145	208	8943	594	.105 7316	2 634	50		Tangent
	20	0 429 0227	438	2937	207	9537	594	.105 4682	2 634	40		593 594 595
	30	0665	438	2729	208	0 475 0132	595	.105 2048	2 634	30		1 59 3 59 4 59 5
	40	1103	438	2521	207	0726	594	.104 9415	2 633	20		2 118 6 118 8 119 0
	50	1541	438	2313	208	1320	594	.104 6782	2 633	10		3 137 9 138 2 138 5
					207		593		2 633			4 157 2 157 6 158 0
25	0	0.429 1979	438	0 903 2105	208	0.475 1914	595	2 104 4150	2 631	0	35	
	10	2417	438	1897	207	2509	594	.104 1519	2 631	50		5 296 5 297 0 297 5
	20	2855	438	1689	208	3103	594	.103 8888	2 631	40		6 315 8 316 4 317 0
	30	3292	437	1480	209	3697	595	.103 6257	2 631	30		7 345 1 345 8 346 5
	40	3730	438	1272	208	4292	594	.103 3627	2 629	20		8 371 4 371 8 372 2
	50	4168	438	1064	207	4886	595	.103 0998	2 629	10		9 393 7 394 6 395 5
					208		595		2 629			
26	0	0.429 4606	438	0.903 0856	208	0 475 5481	594	2.102 8369	2 628	0	34	
	10	5044	438	0648	209	6075	595	.102 5741	2 628	50		Cotangent
	20	5482	437	0439	208	6670	594	.102 3113	2 627	40		2650 2640
	30	5919	438	0231	207	7264	595	.102 0486	2 627	30		1 265 0 264 0
	40	6357	438	0023	208	7859	594	.101 7859	2 627	20		2 530 0 528 0
	50	6795	438	0 902 9815	209	8453	595	.101 5233	2 626	10		3 795 0 792 0
					208		595		2 626			4 1060 0 1056 0
27	0	0.429 7233	438	0.902 9606	208	0.475 9048	594	2.101 2607	2 625	0	33	
	10	7671	437	9398	207	9642	595	.100 9982	2 625	50		5 1325 0 1320 0
	20	8108	438	9190	208	0 476 0237	595	.100 7357	2 624	40		6 1590 0 1584 0
	30	8546	438	8981	209	0832	595	.100 4733	2 624	30		7 1855 0 1848 0
	40	8984	437	8773	208	1426	594	.100 2110	2 623	20		8 2120 0 2112 0
	50	9421	438	8564	207	2021	595	.099 9487	2 623	10		9 2385 0 2376 0
					208		595		2 623			
28	0	0.429 9859	438	0.902 8356	209	0.476 2616	595	2.099 6864	2 622	0	32	
	10	0 430 0297	438	8147	208	3211	595	.099 4242	2 621	50		2630 2620
	20	0735	437	7939	209	3806	594	.099 1621	2 621	40		1 263 0 262 0
	30	1172	438	7730	208	4400	595	.098 9000	2 621	30		2 526 0 524 0
	40	1610	438	7522	209	4995	595	.098 6379	2 619	20		3 789 0 786 0
	50	2048	437	7313	208	5590	595	.098 3760	2 620	10		4 1052 0 1048 0
					207		595		2 620			5 1315 0 1310 0
29	0	0 430 2485	438	0.902 7105	209	0.476 6185	595	2.098 1140	2 618	0	31	
	10	2923	438	6896	208	6780	595	.097 8522	2 618	50		6 1578 0 1572 0
	20	3361	437	6688	209	7375	595	.097 5903	2 619	40		7 1841 0 1834 0
	30	3798	438	6479	208	7970	595	.097 3286	2 617	30		8 2104 0 2096 0
	40	4236	437	6270	209	8565	595	.097 0669	2 617	20		9 2367 0 2358 0
	50	4673	438	6062	208	9160	595	.096 8052	2 616	10		2610
					207		595		2 616			1 261 0
30	0	0.430 5111		0 902 5853		0.476 9755		2.096 5436		0	30	
												2 522 0
												3 783 0
												4 1044 0
												5 1305 0
												6 1566 0
												7 1827 0
												8 2088 0
												9 2349 0
		Cosine	Diff.	Sine	Diff	Cotangent	Diff	Tangent	Diff.	"	'	Proportional Parts

64° 30'

25° 30'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
30	0	0.430 5111		0.902 5853		0.476 9755		2.096 5436		0	30	
	10	5549	438	5644	209	0.477 0350	595	.096 2820	2 616	50		Sine
	20	5986	437	5435	209	0946	595	.096 0205	2 615	40		437 438
	30	6424	438	5227	208	1541	595	.095 7591	2 614	30		1 43 7 43 8
	40	6861	437	5018	209	2136	595	.095 4977	2 614	20		2 87 4 87 6
	50	7299	438	4809	209	2731	595	.095 2364	2 613	10		3 131 1 131 4
			437				595					4 174 8 175 2
31	0	0.430 7736		0.902 4600		0.477 3326		2.094 9751		0	29	
	10	8174	438	4391	209	3922	596	.094 7138	2 613	50		5 218 5 219 0
	20	8611	437	4182	209	4517	595	.094 4527	2 611	40		6 262 2 262 8
	30	9049	438	3974	208	5112	595	.094 1915	2 612	30		7 305 9 306 6
	40	9486	437	3765	209	5708	596	.093 9304	2 611	20		8 349 6 350 4
	50	9924	438	3556	209	6303	595	.093 6694	2 610	10		9 393 3 394 2
			437				596		2 609			
32	0	0.431 0361		0.902 3347		0.477 6899		2.093 4085		0	28	
	10	0799	438	3138	209	7494	595	.093 1475	2 610	50		Cosine
	20	1236	437	2929	209	8090	596	.092 8867	2 608	40		208 209 210
	30	1674	438	2720	209	8685	595	.092 6259	2 608	30		1 20 8 41 8 42 0
	40	2111	437	2511	209	9281	596	.092 3651	2 608	20		2 62 4 62 7 63 0
	50	2548	437	2302	209	9876	595	.092 1044	2 607	10		3 83 2 83 6 84 0
			438		210		596		2 607			4 104 0 104 5 105 0
33	0	0.431 2986		0.902 2092		0.478 0472		2.091 8437		0	27	
	10	3423	437	1883	209	1067	595	.091 5831	2 606	50		5 124 8 125 4 126 0
	20	3861	438	1674	209	1663	596	.091 3226	2 605	40		6 145 6 146 3 147 0
	30	4298	437	1465	209	2259	595	.091 0621	2 605	30		7 166 4 167 2 168 0
	40	4735	438	1256	209	2854	595	.090 8017	2 604	20		8 187 2 188 1 189 0
	50	5173	437	1047	209	3450	596	.090 5413	2 604	10		
			437		209		596		2 604			
34	0	0.431 5610		0.902 0838		0.478 4046		2.090 2809		0	26	
	10	6047	437	0628	210	4642	596	.090 0206	2 603	50		Tangent
	20	6485	438	0419	209	5238	596	.089 7604	2 602	40		595 596 597
	30	6922	437	0210	209	5833	595	.089 5002	2 602	30		1 59 5 59 6 59 7
	40	7359	438	0000	210	6429	596	.089 2401	2 601	20		2 119 0 119 2 119 4
	50	7797	437	9791	209	7025	595	.088 9800	2 601	10		3 178 5 178 8 179 1
			437		209		596		2 601			4 238 0 238 4 238 8
35	0	0.431 8234		0.901 9582		0.478 7621		2.088 7200		0	25	
	10	8671	437	9372	210	8217	596	.088 4601	2 599	50		5 297 5 298 0 298 5
	20	9109	438	9163	209	8813	596	.088 2001	2 599	40		6 357 0 357 6 358 2
	30	9546	437	8954	209	9409	595	.087 9403	2 598	30		7 416 5 417 2 417 9
	40	9983	437	8744	210	0 479 0005	596	.087 6805	2 598	20		8 476 0 476 8 477 6
	50	0.432 0420	437	8535	209	0601	596	.087 4207	2 598	10		9 535 5 536 4 537 3
			437		210		596		2 597			
36	0	0.432 0857		0.901 8325		0.479 1197		2.087 1610		0	24	
	10	1295	438	8116	209	1793	596	.086 9014	2 596	50		Cotangent
	20	1732	437	7906	210	2389	596	.086 6418	2 596	40		2620 2610
	30	2169	437	7697	209	2986	597	.086 3822	2 596	30		1 262 0 261 0
	40	2606	437	7487	210	3582	596	.086 1227	2 595	20		2 524 0 522 0
	50	3043	438	7278	210	4178	596	.085 8633	2 594	10		3 786 0 783 0
												4 1018 0 1044 0
37	0	0.432 3481		0.901 7068		0.479 4774		2.085 6039		0	23	
	10	3918	437	6858	209	5371	597	.085 3445	2 594	50		5 1310 0 1305 0
	20	4355	437	6649	210	5967	596	.085 0853	2 592	40		6 1572 0 1566 0
	30	4792	437	6439	210	6563	596	.084 8260	2 591	30		7 1834 0 1827 0
	40	5229	437	6229	209	7160	596	.084 5669	2 592	20		8 2096 0 2088 0
	50	5666	437	6020	210	7756	596	.084 3077	2 590	10		9 2358 0 2349 0
38	0	0.432 6103		0.901 5810		0.479 8352		2.084 0487		0	22	
	10	6540	437	5600	210	8949	597	.083 7896	2 591	50		2600 2590
	20	6978	438	5390	210	9545	596	.083 5307	2 589	40		1 260 0 259 0
	30	7415	437	5181	209	0.480 0142	597	.083 2717	2 590	30		2 520 0 518 0
	40	7852	437	4971	210	0738	596	.083 0129	2 588	20		3 780 0 777 0
	50	8289	437	4761	210	1335	597	.082 7541	2 588	10		4 1040 0 1036 0
												5 1300 0 1295 0
39	0	0.432 8726		0.901 4551		0.480 1932		2.082 4953		0	21	
	10	9163	437	4341	210	2528	596	.082 2366	2 587	50		6 1560 0 1554 0
	20	9600	437	4131	210	3125	597	.081 9779	2 587	40		7 1820 0 1813 0
	30	0.433 0037	437	3921	209	3722	597	.081 7193	2 586	30		8 2080 0 2072 0
	40	0474	437	3712	209	4318	596	.081 4608	2 585	20		9 2340 0 2331 0
	50	0911	437	3502	210	4915	597	.081 2023	2 585	10		2580
												1 258 0
40	0	0.433 1348		0.901 3292		0.480 5512		2.080 9438		0	20	
												2 516 0
												3 774 0
												4 1032 0
												5 1290 0
												6 1548 0
												7 1806 0
												8 2064 0
												9 2322 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

64° 20'

25° 40'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
40	0	0.433 1348		0.901 3292		0.480 5512		2.080 9438		0	20	
	10	1785	437	3082	210	6109	597	.080 6854	2 584	50		Sine
	20	2222	437	2872	210	6705	596	.080 4271	2 583	40		436 437
	30	2659	437	2662	210	7302	597	.080 1688	2 583	30		1 43 6 43 7
	40	3096	437	2451	211	7899	597	.079 9106	2 582	20		2 87 2 87 4
	50	3533	437	2241	210	8496	597	.079 6524	2 582	10		3 130 8 131 1
			437		210				2 582			4 174 4 174 1
41	0	0.433 3970		0.901 2031		0.480 9093		2.079 3942		0	19	
	10	4406	436	1821	210	9690	597	.079 1362	2 580	50		5 218 0 218 5
	20	4843	437	1611	210	10287	597	.078 8781	2 581	40		6 261 6 262 2
	30	5280	437	1401	210	10884	597	.078 6201	2 580	30		7 305 2 305 9
	40	5717	437	1191	211	11481	597	.078 3622	2 579	20		8 348 8 349 6
	50	6154	437	0980	211	12078	597	.078 1043	2 579	10		9 392 4 393 3
			437		210				2 578			
42	0	0.433 6591		0.901 0770		0.481 2675		2.077 8465		0	18	
	10	7028	437	0560	210	3272	597	.077 5888	2 577	50		Cosine
	20	7465	437	0350	210	3869	597	.077 3310	2 578	40		210 211 212
	30	7901	436	0139	211	4466	597	.077 0734	2 576	30		1 21 0 21 1 21 2
	40	8338	437	0900 9929	210	5064	598	.076 8158	2 576	20		2 42 0 42 2 42 4
	50	8775	437	9719	210	5661	597	.076 5582	2 576	10		3 63 0 63 3 63 6
			437		211		597		2 575			4 84 0 84 4 84 8
43	0	0.433 9212		0.900 9508		0.481 6258		2.076 3007		0	17	
	10	9649	437	9298	210	6855	597	.076 0432	2 575	50		5 105 0 105 5 106 0
	20	0.434 0085	436	9088	210	7453	598	.075 7858	2 574	40		6 126 0 126 6 127 2
	30	0522	437	8877	211	8050	597	.075 5285	2 573	30		7 147 0 147 7 148 4
	40	0959	437	8667	210	8647	597	.075 2711	2 574	20		8 168 0 168 8 169 6
	50	1396	437	8456	211	9245	598	.075 0139	2 572	10		9 189 0 189 9 190 8
			436		210		597		2 572			
44	0	0.434 1832		0.900 8246		0.481 9842		2.074 7567		0	16	
	10	2269	437	8035	211	0.482 0440	598	.074 4995	2 572	50		Tangent
	20	2706	437	7825	210	1037	597	.074 2424	2 571	40		596 597
	30	3143	437	7614	211	1635	598	.073 9854	2 570	30		1 59 6 59 7
	40	3579	436	7404	210	2232	597	.073 7284	2 570	20		2 119 2 119 4
	50	4016	437	7193	211	2830	598	.073 4715	2 569	10		3 178 8 179 1
			437		211		597		2 569			4 238 4 238 8
45	0	0.434 4453		0.900 6982		0.482 3427		2.073 2146		0	15	
	10	4889	436	6772	210	4025	598	.072 9577	2 569	50		5 298 0 298 5
	20	5326	437	6561	211	4623	598	.072 7009	2 568	40		6 357 6 358 2
	30	5763	437	6350	211	5220	597	.072 4442	2 567	30		7 417 2 417 9
	40	6199	436	6140	210	5818	598	.072 1875	2 567	20		8 476 8 477 6
	50	6636	437	5929	211	6416	598	.071 9309	2 566	10		9 536 4 537 3
			436		211		598		2 566			
46	0	0.434 7072		0.900 5718		0.482 7014		2.071 6743		0	14	
	10	7509	437	5507	211	7611	597	.071 4178	2 565	50		598 599
	20	7946	437	5297	210	8209	598	.071 1613	2 565	40		1 59 8 59 9
	30	8382	436	5086	211	8807	598	.070 9049	2 564	30		2 119 6 119 8
	40	8819	437	4875	211	9405	598	.070 6485	2 564	20		3 179 4 179 7
	50	9255	436	4664	211	0.483 0003	598	.070 3922	2 563	10		4 239 2 239 6
			437		211		598		2 563			5 299 0 299 5
47	0	0.434 9692		0.900 4453		0.483 0601		2.070 1359		0	13	
	10	0.435 0128	436	4242	211	1199	598	.069 8797	2 562	50		Cotangent
	20	0565	437	4032	211	1797	598	.069 6235	2 561	40		2580 2570
	30	1001	436	3821	211	2395	598	.069 3674	2 561	30		1 258 0 257 0
	40	1438	437	3610	211	2993	598	.069 1113	2 561	20		2 516 0 514 0
	50	1875	437	3399	211	3591	598	.068 8553	2 560	10		3 774 0 771 0
			436		211		598		2 559			4 1032 0 1028 0
48	0	0.435 2311		0.900 3188		0.483 4189		2.068 5994		0	12	
	10	2747	436	2977	211	4787	598	.068 3434	2 560	50		5 1290 0 1285 0
	20	3184	437	2766	211	5385	598	.068 0876	2 558	40		6 1548 0 1542 0
	30	3620	436	2555	211	5983	598	.067 8318	2 558	30		7 1806 0 1799 0
	40	4057	437	2344	211	6582	599	.067 5760	2 558	20		8 2064 0 2056 0
	50	4493	436	2132	212	7180	598	.067 3202	2 558	10		9 2322 0 2313 0
			437		211		598		2 556			
49	0	0.435 4930		0.900 1921		0.483 7778		2.067 0646		0	11	
	10	5366	436	1710	211	8376	598	.066 8090	2 556	50		2560 2550
	20	5803	437	1499	211	8975	599	.066 5535	2 555	40		1 256 0 255 0
	30	6239	436	1288	211	9573	598	.066 2980	2 555	30		2 512 0 510 0
	40	6675	436	1077	211	0.484 0171	598	.066 0425	2 555	20		3 768 0 765 0
	50	7112	437	0865	212	0770	599	.065 7871	2 554	10		4 1024 0 1020 0
			436		211		598		2 553			5 1280 0 1275 0
50	0	0.435 7548		0.900 0654		0.484 1368		2.065 5318		0	10	
												6 1536 0 1530 0
												7 1792 0 1785 0
												8 2048 0 2040 0
												9 2304 0 2295 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff.	"	"	Proportional Parts

64° 10'

25° 50'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
50	0	0.435 7548		0.900 0654		0.484 1368		2.065 5318		0	10	Sine
	10	7984	436	0443	211	1967	599	065 2765	2 553	50		435 436 437
	20	8421	437	0232	211	2565	598	.065 0212	2 552	40		1 43 5 43 6 43 7
	30	8857	436	0020	212	3164	599	064 7660	2 551	30		2 87 0 87 2 87 4
	40	9293	436	0.899 9809	211	3762	598	064 5109	2 551	20		3 130 5 130 8 131 1
	50	9730	437	9598	211	4361	599	064 2558	2 551	10		4 174 0 174 4 174 8
			436		212		598		2 550			
51	0	0 436 0166		0.899 9386		0 484 4959		2.064 0008		0	9	Sine
	10	0602	436	9175	211	5558	599	.063 7458	2 550	50		5 217 5 218 0 218 5
	20	1039	437	8963	212	6157	599	063 4908	2 550	40		6 261 0 261 6 262 2
	30	1475	436	8752	211	6755	598	063 2359	2 549	30		7 304 5 305 2 305 9
	40	1911	436	8540	212	7354	599	062 9811	2 548	20		8 348 0 348 8 349 6
	50	2347	437	8329	211	7953	599	.062 7263	2 548	10		9 391 5 392 4 393 3
			436		212		598		2 547			
52	0	0 436 2784		0.899 8117		0 484 8552		2 062 4716		0	8	Cosine
	10	3220	436	7906	211	9150	598	062 2169	2 547	50		211 212 213
	20	3656	436	7694	212	9749	599	061 9623	2 546	40		1 21 1 21 2 21 3
	30	4092	436	7483	211	0 485 0348	599	061 7077	2 546	30		2 42 2 42 4 42 6
	40	4529	437	7271	212	0947	599	061 4531	2 546	20		3 63 3 63 6 63 9
	50	4965	436	7060	211	1546	599	.061 1987	2 544	10		4 84 4 84 8 85 2
			436		212		598		2 545			
53	0	0.436 5401		0.899 6948		0 485 2145		2 060 9442		0	7	Sine
	10	5837	436	6636	212	2744	599	.060 6899	2 543	50		5 105 5 106 0 106 5
	20	6273	436	6425	211	3343	599	060 4355	2 544	40		6 126 6 127 2 127 8
	30	6709	436	6213	212	3942	599	.060 1812	2 543	30		7 147 7 148 1 149 1
	40	7146	437	6001	212	4541	599	059 9270	2 542	20		8 168 8 169 6 170 4
	50	7582	436	5790	211	5140	599	059 6728	2 542	10		9 189 9 190 8 191 7
			436		212		598		2 541			
54	0	0 436 8018		0.899 5578		0.485 5739		2 059 4187		0	6	Tangent
	10	8454	436	5366	212	6338	599	059 1646	2 541	50		598 599 600
	20	8890	436	5154	212	6937	599	058 9106	2 540	40		1 59 8 59 9 60 0
	30	9326	436	4942	211	7537	600	058 6566	2 540	30		2 119 6 119 8 120 0
	40	9762	436	4731	211	8136	599	058 4027	2 539	20		3 179 4 179 7 180 0
	50	0 437 0198	436	4519	212	8735	599	058 1488	2 539	10		4 239 2 239 6 240 0
			436		212		598		2 538			
55	0	0 437 0634		0.899 4307		0.485 9334		2 057 8950		0	5	Sine
	10	1070	436	4095	212	9934	600	057 6413	2 537	50		5 299 0 299 5 300 0
	20	1506	436	3883	212	0 486 0533	599	057 3875	2 538	40		6 358 8 359 4 360 0
	30	1943	437	3671	212	1132	599	057 1339	2 536	30		7 418 6 419 3 420 0
	40	2379	436	3459	212	1732	600	056 8802	2 537	20		8 478 4 479 2 480 0
	50	2815	436	3247	212	2331	599	056 6267	2 535	10		9 538 2 539 1 540 0
			436		212		600		2 535			
56	0	0 437 3251		0.899 3035		0.486 2931		2 056 3732		0	4	Cotangent
	10	3687	436	2823	212	3530	599	.056 1197	2 535	50		2550 2540
	20	4123	436	2611	212	4130	600	055 8663	2 534	40		1 255 0 254 0
	30	4558	435	2399	212	4729	599	.055 6129	2 534	30		2 510 0 508 0
	40	4994	436	2187	212	5329	600	.055 3596	2 533	20		3 765 0 762 0
	50	5430	436	1975	212	5928	599	.055 1063	2 533	10		4 1020 0 1016 0
			436		212		600		2 532			
57	0	0 437 5866		0.899 1763		0 486 6528		2.054 8531		0	3	Sine
	10	6302	436	1550	213	7128	600	.054 5999	2 532	50		5 1275 0 1270 0
	20	6738	436	1338	212	7727	599	.054 3468	2 531	40		6 1530 0 1521 0
	30	7174	436	1126	212	8327	600	.054 0938	2 530	30		7 1785 0 1778 0
	40	7610	436	0914	212	8927	599	.053 8408	2 530	20		8 2040 0 2032 0
	50	8046	436	0702	213	9526	600	053 5878	2 529	10		9 2295 0 2286 0
			436		213		600		2 529			
58	0	0.437 8482		0.899 0489		0.487 0126		2.053 3349		0	2	Cotangent
	10	8918	436	0277	212	0726	600	.053 0820	2 529	50		2530 2520
	20	9353	435	0065	212	1326	600	.052 8292	2 528	40		1 253 0 252 0
	30	9789	436	0.898 9852	213	1926	600	052 5764	2 528	30		2 506 0 504 0
	40	0.438 0225	436	9640	212	2526	600	.052 3237	2 527	20		3 759 0 756 0
	50	0661	436	9428	213	3126	600	.052 0711	2 526	10		4 1012 0 1008 0
			436		213		600		2 526			
59	0	0.438 1097		0.898 9215		0.487 3728		2.051 8185		0	1	Sine
	10	1533	436	9003	212	4326	600	.051 5659	2 526	50		5 1265 0 1255 0
	20	1968	435	8790	213	4926	600	.051 3134	2 525	40		6 1506 0 1506 0
	30	2404	436	8578	212	5526	600	.051 0609	2 525	30		7 1757 0 1757 0
	40	2840	436	8365	213	6126	600	.050 8085	2 524	20		8 2008 0 2008 0
	50	3276	435	8153	212	6726	600	.050 5562	2 523	10		9 2259 0 2259 0
			435		213		600		2 524			
60	0	0.438 3711		0.898 7940		0.487 7326		2.050 3038		0	0	Proportional Parts
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

64° 0'

26° 0'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
0	0	0.438 3711		0.898 7940		0.487 7326		2.050 3038		0	60	
	10	4147	436	7728	212	7926	600	.050 0516	2 522	50		
	20	4583	436	7515	212	8526	600	.049 7994	2 522	40		
	30	5019	436	7303	212	9126	600	.049 5472	2 522	30		
	40	5454	435	7090	213	9727	601	.049 2951	2 521	20		
	50	5890	436	6878	212	0.488 0327	600	.049 0430	2 521	10		
1	0	0.438 6326		0.898 6665		0.488 0927		2.048 7910		0	59	
	10	6761	435	6452	213	1528	601	.048 5391	2 519	50		Sine
	20	7197	436	6240	212	2128	600	.048 2872	2 519	40		435 436
	30	7633	436	6027	213	2728	600	.048 0353	2 519	30		1 43 5 43 6
	40	8068	435	5814	213	3329	601	.047 7835	2 518	20		2 87 0 87 2
	50	8504	436	5601	212	3929	600	.047 5317	2 518	10		3 130 5 130 8
2	0	0.438 8940		0.898 5389		0.488 4530		2.047 2800		0	58	
	10	9375	435	5176	213	5130	600	.047 0284	2 516	50		4 174 0 174 4
	20	9811	436	4963	213	5731	601	.046 7768	2 516	40		5 217 5 218 0
	30	0.439 0247	435	4750	213	6331	600	.046 5252	2 516	30		6 261 0 261 6
	40	0682	435	4537	213	6932	601	.046 2737	2 515	20		7 304 5 305 2
	50	1118	436	4324	212	7532	600	.046 0222	2 515	10		8 348 0 348 8
3	0	0.439 1553		0.898 4112		0.488 8133		2.045 7708		0	57	
	10	1989	436	3899	213	8734	601	.045 5195	2 513	50		9 391 5 392 4
	20	2424	435	3686	213	9334	600	.045 2682	2 513	40		Cosine
	30	2860	435	3473	213	9935	601	.045 0169	2 513	30		212 213 214
	40	3295	436	3260	213	0.489 0536	600	.044 7657	2 512	20		1 21 2 21 3
	50	3731	435	3047	213	1137	601	.044 5145	2 512	10		2 42 4 42 6
4	0	0.439 4166		0.898 2834		0.489 1737		2.044 2634		0	56	
	10	4602	436	2621	213	2338	601	.044 0124	2 510	50		3 63 6 63 2
	20	5037	435	2408	213	2939	600	.043 7613	2 511	40		4 84 8 85 2
	30	5473	436	2194	214	3540	601	.043 5104	2 509	30		5 106 0 106 5
	40	5908	435	1981	213	4141	601	.043 2595	2 509	20		6 127 2 127 8
	50	6344	436	1768	213	4742	601	.043 0086	2 509	10		7 148 4 149 1
5	0	0.439 6779		0.898 1555		0.489 5343		2.042 7578		0	55	
	10	7215	436	1342	213	5944	601	.042 5070	2 508	50		8 169 6 170 1
	20	7650	435	1129	213	6545	600	.042 2563	2 507	40		9 190 8 191 7
	30	8086	436	0916	213	7146	601	.042 0057	2 506	30		100 8 191 7
	40	8521	435	0702	213	7747	601	.041 7550	2 505	20		106 5 107 0
	50	8956	436	0489	213	8348	601	.041 5045	2 505	10		127 8 128 4
6	0	0.439 9392		0.898 0276		0.489 8949		2.041 2540		0	54	
	10	9827	435	0062	214	9551	602	.041 0035	2 505	50		149 1 149 8
	20	0.440 0262	435	0.897 9849	213	0.490 0152	601	.040 7531	2 504	40		169 6 170 1
	30	0698	435	9636	214	0753	601	.040 5027	2 503	30		180 3 180 6
	40	1133	435	9422	213	1354	602	.040 2524	2 503	20		240 4 240 8
	50	1568	436	9209	213	1956	601	.040 0021	2 502	10		300 5 301 0
7	0	0.440 2004		0.897 8996		0.490 2557		2.039 7519		0	53	
	10	2439	435	8782	214	3158	601	.039 5018	2 501	50		360 6 361 2
	20	2874	435	8569	213	3760	602	.039 2516	2 502	40		420 7 421 4
	30	3310	436	8355	214	4361	601	.039 0016	2 500	30		480 8 481 6
	40	3745	435	8142	213	4963	602	.038 7515	2 501	20		540 9 541 8
	50	4180	435	7928	214	5564	601	.038 5016	2 499	10		
8	0	0.440 4615		0.897 7715		0.490 6166		2.038 2517		0	52	
	10	5051	436	7501	214	6767	601	.038 0018	2 499	50		Cotangent
	20	5486	435	7288	213	7369	602	.037 7520	2 498	40		2520 2510
	30	5921	435	7074	214	7970	601	.037 5022	2 498	30		1 252 0 251 0
	40	6356	435	6860	214	8572	602	.037 2525	2 497	20		2 504 0 502 0
	50	6792	436	6647	214	9173	601	.037 0028	2 497	10		3 756 0 753 0
9	0	0.440 7227		0.897 6433		0.490 9775		2.036 7532		0	51	
	10	7662	435	6219	214	0.491 0377	602	.036 5036	2 496	50		4 1008 0 1004 0
	20	8097	435	6006	213	0979	602	.036 2541	2 495	40		5 1260 0 1255 0
	30	8532	435	5792	214	1580	601	.036 0046	2 495	30		6 1512 0 1506 0
	40	8967	435	5578	214	2182	602	.035 7552	2 494	20		7 1761 0 1757 0
	50	9403	436	5365	213	2784	601	.035 5058	2 494	10		8 2016 0 2008 0
10	0	0.440 9838		0.897 6151		0.491 3386		2.035 2565		0	50	
												9 2268 0 2259 0
												2520 2490
												1 250 0 249 0
												2 500 0 498 0
												3 750 0 747 0
												4 1000 0 996 0
												5 1250 0 1245 0
												6 1500 0 1494 0
												7 1750 0 1743 0
												8 2000 0 1992 0
												9 2250 0 2241 0
												Proportional Parts
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

63° 50'

26° 10'

'	"	Sine	Diff	Cosine	Diff.	Tangent	Diff.	Cotangent	Diff			Proportional Parts
10	0	0.440 9838		0.897 5151		0.491 3386		2.035 2565		0	50	Sine
	10	0.441 0273	435	4937	214	3988	602	.035 0072	2 493	50		434 435 436
	20	0708	435	4723	214	4589	601	.034 7579	2 491	40		1 43 4 43 5 43 6
	30	1143	435	4509	214	5191	602	.034 5088	2 491	30		2 86 8 87 0 87 2
	40	1578	435	4295	214	5793	602	.034 2596	2 492	20		3 130 2 130 5 130 8
	50	2013	435	4082	213	6395	602	.034 0106	2 490	10		4 173 6 174 0 174 4
			435		214		602		2 491			5 217 0 217 5 218 0
11	0	0.441 2448		0.897 3868		0.491 6997		2.033 7615		0	49	6 260 4 261 0 261 6
	10	2883	435	3654	214	7599	602	.033 5125	2 490	50		7 303 8 304 5 305 2
	20	3318	435	3440	214	8201	602	.033 2636	2 489	40		8 347 2 348 0 348 8
	30	3753	435	3226	214	8804	603	.033 0147	2 489	30		9 390 6 391 5 392 4
	40	4189	436	3012	214	9406	602	.032 7659	2 488	20		
	50	4624	435	2798	214		602	.032 5171	2 488	10		
			435		214		602		2 488			
12	0	0.441 5059		0.897 2584		0.492 0610		2.032 2683		0	48	Cosine
	10	5494	435	2370	214	1212	602	.032 0197	2 486	50		213 214 215
	20	5929	435	2156	214	1814	602	.031 7710	2 487	40		1 21 3 21 4 21 5
	30	6363	434	1941	215	2417	603	.031 5224	2 486	30		2 42 6 42 8 43 0
	40	6798	435	1727	214	3019	602	.031 2739	2 485	20		3 63 9 64 2 64 5
	50	7233	435	1513	214	3621	602	.031 0254	2 485	10		4 85 2 85 6 86 0
			435		214		603		2 485			5 106 5 107 0 107 5
13	0	0.441 7668		0.897 1299		0.492 4224		2.030 7769		0	47	6 127 8 128 4 129 0
	10	8103	435	1085	214	4826	602	.030 5285	2 484	50		7 149 1 149 8 150 5
	20	8538	435	0871	214	5429	603	.030 2802	2 483	40		8 170 4 171 2 172 0
	30	8973	435	0656	215	6031	602	.030 0319	2 483	30		9 191 7 192 6 193 5
	40	9408	435	0442	214	6633	602	.029 7836	2 483	20		
	50	9843	435	0228	214	7236	603	.029 5354	2 482	10		
			435		214		602		2 481			Tangent
14	0	0.442 0278		0.897 0014		0.492 7838		2.029 2873		0	46	601 602
	10	0713	435	0.896 9799	215	8441	603	.029 0392	2 481	50		1 60 1 60 2
	20	1148	435	9585	214	9044	603	.028 7911	2 481	40		2 120 2 120 4
	30	1582	434	9371	214	9646	602	.028 5431	2 480	30		3 180 3 180 6
	40	2017	435	9156	215		603	.028 2952	2 479	20		4 240 4 240 8
	50	2452	435	8942	214	0.493 0249	603	.028 0473	2 479	10		5 300 5 301 0
			435		215	0852	602		2 479			6 360 6 361 2
15	0	0.442 2887		0.896 8727		0.493 1454		2.027 7994		0	45	7 420 7 421 4
	10	3322	435	8513	214	2057	603	.027 5516	2 478	50		8 480 8 481 6
	20	3757	435	8299	214	2660	603	.027 3038	2 478	40		9 540 9 541 8
	30	4191	434	8084	215	3263	603	.027 0561	2 477	30		
	40	4626	435	7870	214	3865	602	.026 8085	2 476	20		603 604
	50	5061	435	7655	215	4468	603	.026 5608	2 477	10		1 60 3 60 4
			435		215		603		2 475			2 120 6 120 8
16	0	0.442 5496		0.896 7440		0.493 5071		2 026 3133		0	44	3 180 9 181 2
	10	5930	434	7226	214	5674	603	.026 0657	2 476	50		4 241 2 241 6
	20	6365	435	7011	215	6277	603	.025 8183	2 474	40		5 301 5 302 0
	30	6800	435	6797	214	6880	603	.025 5709	2 474	30		6 361 8 362 4
	40	7235	434	6582	215	7483	603	.025 3235	2 474	20		7 422 1 422 8
	50	7669	435	6367	215	8086	603	.025 0762	2 473	10		8 482 4 483 2
			435		214		603		2 473			9 542 7 543 6
17	0	0.442 8104		0.896 6153		0.493 8689		2 024 8289		0	43	Cotangent
	10	8539	435	5938	215	9292	603	.024 5817	2 472	50		2490 2480
	20	8973	434	5723	215	9895	603	.024 3345	2 472	40		1 249 0 248 0
	30	9408	435	5509	214	0 494 0498	603	.024 0873	2 472	30		2 498 0 496 0
	40	9843	435	5294	215	1101	603	.023 8403	2 470	20		3 747 0 744 0
	50	0.443 0277	434	5079	215	1705	604	.023 5932	2 471	10		4 996 0 992 0
			435		215		603		2 470			5 1245 0 1240 0
18	0	0.443 0712		0.896 4864		0.494 2308		2 023 3462		0	42	6 1494 0 1488 0
	10	1147	435	4649	215	2911	603	.023 0993	2 469	50		7 1743 0 1736 0
	20	1581	434	4435	214	3514	603	.022 8524	2 469	40		8 1992 0 1984 0
	30	2016	435	4220	215	4118	604	.022 6056	2 468	30		9 2241 0 2232 0
	40	2450	434	4005	215	4721	603	.022 3588	2 468	20		
	50	2885	435	3790	215	5324	603	.022 1120	2 468	10		2470 2460
			434		215		604		2 466			1 247 0 246 0
19	0	0.443 3319		0.896 3575		0.494 5928		2.021 8654		0	41	2 494 0 492 0
	10	3754	435	3360	215	6531	603	.021 6187	2 457	50		3 741 0 738 0
	20	4189	435	3145	215	7135	604	.021 3721	2 466	40		4 988 0 984 0
	30	4623	434	2930	215	7738	603	.021 1256	2 465	30		5 1235 0 1230 0
	40	5058	435	2715	215	8342	603	.020 8791	2 465	20		6 1482 0 1476 0
	50	5492	434	2500	215	8945	603	.020 6326	2 465	10		7 1729 0 1722 0
			435		215		604		2 464			8 1976 0 1968 0
20	0	0.443 5927		0.896 2285		0.494 9549		2.020 3862		0	40	9 2223 0 2214 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

63° 40'

26° 20'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
20	0	0.443 5927	434	0.896 2285	215	0.494 9549	603	2.020 3862	2 464	0	40	
	10	6361	434	2070	215	0.495 0152	603	.020 1398	2 464	50		Sine
	20	6796	435	1855	215	0756	604	.019 8935	2 463	40		433 434 435
	30	7230	434	1640	215	1360	604	.019 6473	2 462	30		1 43 3 43 4 43 5
	40	7665	435	1425	215	1963	603	.019 4011	2 462	20		2 86 6 86 8 87 0
	50	8099	434	1210	215	2567	604	.019 1549	2 462	10		3 129 9 130 2 130 5
21	0	0.443 8534	434	0.896 0994	215	0.495 3171	604	2.018 9088	2 461	0	39	
	10	8968	434	0779	215	3775	604	.018 6627	2 461	50		4 173 2 173 6 174 0
	20	9402	435	0564	215	4378	603	.018 4167	2 460	40		5 216 5 217 0 217 5
	30	9837	434	0349	216	4982	604	.018 1707	2 460	30		6 259 8 260 4 261 0
	40	0.444 0271	435	0133	215	5586	604	.017 9248	2 459	20		7 303 1 303 8 304 5
	50	0706	434	0.895 9918	215	6190	604	.017 6789	2 459	10		8 346 4 347 2 348 0
22	0	0.444 1140	434	0.895 9703	215	0.495 6794	604	2.017 4331	2 458	0	38	
	10	1574	435	9488	216	7398	604	.017 1873	2 457	50		Cosine
	20	2009	434	9272	215	8002	604	.016 9416	2 457	40		215 216 217
	30	2443	434	9057	216	8606	604	.016 6959	2 456	30		1 21 5 21 6 21 7
	40	2877	435	8841	215	9210	604	.016 4503	2 456	20		2 43 0 43 2 43 4
	50	3312	434	8626	215	9814	604	.016 2047	2 455	10		3 64 5 64 8 65 1
23	0	0.444 3746	434	0.895 8411	216	0.496 0418	604	2.015 9592	2 455	0	37	
	10	4180	435	8195	215	1022	604	.015 7137	2 455	50		4 86 0 86 4 86 8
	20	4615	434	7980	216	1626	604	.015 4682	2 454	40		5 107 5 108 0 108 5
	30	5049	434	7764	215	2230	605	.015 2228	2 453	30		6 129 0 129 6 130 2
	40	5483	435	7549	216	2835	604	.014 9775	2 453	20		7 150 5 151 2 151 9
	50	5918	434	7333	215	3439	604	.014 7322	2 453	10		8 172 0 172 8 173 6
24	0	0.444 6352	434	0.895 7118	216	0.496 4043	604	2.014 4869	2 452	0	36	
	10	6786	434	6902	216	4647	605	.014 2417	2 451	50		Tangent
	20	7220	435	6686	215	5252	605	.013 9966	2 451	40		603 604
	30	7655	434	6471	216	5856	604	.013 7515	2 451	30		1 60 3 60 4
	40	8089	434	6255	215	6460	604	.013 5064	2 451	20		2 120 6 120 8
	50	8523	434	6040	216	7065	605	.013 2614	2 450	10		3 180 9 181 2
25	0	0.444 8957	434	0.895 5824	216	0.496 7669	605	2.013 0164	2 450	0	35	
	10	9391	434	5608	216	8274	604	.012 7715	2 449	50		4 241 2 241 6
	20	9825	435	5392	215	8878	605	.012 5267	2 449	40		5 301 5 302 0
	30	0.445 0260	434	5177	216	9483	605	.012 2818	2 449	30		6 361 8 362 4
	40	0694	434	4961	216	0.497 0087	604	.012 0371	2 448	20		7 422 1 422 8
	50	1128	434	4745	216	0692	605	.011 7923	2 448	10		8 482 4 483 2
26	0	0.445 1582	434	0.895 4529	216	0.497 1297	605	2.011 5477	2 446	0	34	
	10	1996	434	4313	215	1901	604	.011 3030	2 447	50		9 542 7 543 6
	20	2430	434	4098	216	2506	605	.011 0585	2 445	40		605 606
	30	2864	435	3882	216	3111	604	.010 8139	2 445	30		1 60 5 60 6
	40	3299	434	3666	216	3715	605	.010 5694	2 444	20		2 121 0 121 2
	50	3733	434	3450	216	4320	605	.010 3250	2 444	10		3 181 5 181 8
27	0	0.445 4167	434	0.895 3234	216	0.497 4925	605	2.010 0806	2 443	0	33	
	10	4601	434	3018	216	5530	605	.009 8363	2 443	50		4 242 0 242 4
	20	5035	434	2802	216	6135	604	.009 5920	2 443	40		5 302 5 303 0
	30	5469	434	2586	216	6739	605	.009 3477	2 442	30		6 363 0 363 6
	40	5903	434	2370	216	7344	605	.009 1035	2 442	20		7 423 5 424 2
	50	6337	434	2154	216	7949	605	.008 8594	2 441	10		8 484 0 484 8
28	0	0.445 6771	434	0.895 1938	216	0.497 8554	605	2.008 6163	2 441	0	32	
	10	7205	434	1722	216	9159	605	.008 3712	2 441	50		9 544 7 545 6
	20	7639	434	1506	216	9764	605	.008 1272	2 440	40		Cotangent
	30	8073	434	1290	216	0.498 0369	605	.007 8832	2 440	30		2460 2450
	40	8507	434	1074	217	0974	605	.007 6393	2 439	20		1 246 0 245 0
	50	8941	434	0857	216	1579	606	.007 3955	2 438	10		2 492 0 490 0
29	0	0.445 9375	434	0.895 0641	216	0.498 2185	605	2.007 1516	2 437	0	31	
	10	9809	434	0425	216	2790	605	.006 9079	2 437	50		3 738 0 735 0
	20	0.446 0243	433	0209	217	3395	605	.006 6641	2 436	40		4 984 0 980 0
	30	0676	434	0.894 9992	216	4000	605	.006 4205	2 437	30		5 1230 0 1225 0
	40	1110	434	9776	216	4605	605	.006 1768	2 436	20		6 1476 0 1470 0
	50	1544	434	9560	216	5211	605	.005 9332	2 435	10		7 1722 0 1715 0
30	0	0.446 1978		0.894 9344		0.498 5816		2.005 6897		0	30	
												8 1968 0 1960 0
												9 2214 0 2205 0
												2440 2430
												1 244 0 243 0
												2 488 0 486 0
												3 732 0 729 0
												4 976 0 972 0
												5 1220 0 1215 0
												6 1464 0 1458 0
												7 1708 0 1701 0
												8 1952 0 1944 0
												9 2196 0 2187 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

63° 30'

63° 20'

26° 40'

'	"	Sine	Diff.	Cosine	Diff.	Tangent	Diff.	Cotangent	Diff.			Proportional Parts
40	0	0.448 7992		0.893 6326		0.502 2189		1 991 1637		0	20	
	10	8425	433	6109	217	2796	607	.990 9230	2 407	50		
	20	8858	433	5891	218	3403	607	.990 6824	2 406	40		
	30	9291	433	5674	217	4010	607	.990 4418	2 406	30		
	40	9725	434	5456	218	4617	607	.990 2013	2 405	20		
	50	0 449 0158	433	5238	218	5225	608	.989 9608	2 405	10		
			433		217		607		2 404			
41	0	0.449 0691		0.893 5021		0.502 5832		1.989 7204		0	19	Sine
	10	1024	433	4803	218	6439	607	.989 4800	2 404	50		432 433 434
	20	1457	433	4585	218	7046	607	.989 2396	2 404	40		1 43 2 43 3 43 4
	30	1891	434	4367	218	7654	608	.989 9993	2 403	30		2 86 4 86 6 86 8
	40	2324	433	4150	217	8261	607	.988 7591	2 402	20		3 129 6 129 9 130 2
	50	2757	433	3932	218	8869	608	.988 5188	2 403	10		4 172 8 173 2 173 6
			434		218		607		2 401			5 216 0 216 5 217 0
42	0	0.449 3190		0.893 3714		0 502 9476		1.988 2787		0	18	
	10	3623	433	3496	218	0.503 0083	607	.988 0386	2 401	50		6 259 2 259 8 260 4
	20	4056	433	3278	218	0691	608	.987 7985	2 401	40		7 302 4 303 1 303 8
	30	4489	433	3060	218	1299	608	.987 5585	2 400	30		8 315 6 346 4 347 2
	40	4922	433	2842	218	1906	607	.987 3185	2 400	20		9 388 8 389 7 390 6
	50	5355	434	2624	218	2514	608	.987 0786	2 399	10		
					218		607		2 399			Cosine
43	0	0.449 5789		0.893 2406		0.503 3121		1 986 8387		0	17	217 218 219
	10	6222	433	2189	217	3729	608	.986 5988	2 399	50		1 21 7 21 8 21 9
	20	6655	433	1971	218	4337	608	.986 3590	2 398	40		2 43 4 43 6 43 8
	30	7088	433	1753	218	4944	607	.986 1193	2 397	30		3 65 1 65 4 65 7
	40	7521	433	1534	219	5552	608	.985 8796	2 397	20		4 86 8 87 2 87 6
	50	7954	433	1316	218	6160	608	.985 6399	2 397	10		5 108 5 109 0 109 5
			433		218		608		2 396			6 130 2 130 8 131 4
44	0	0.449 8387		0.893 1098		0.503 6768		1.985 4003		0	16	7 151 9 152 6 153 3
	10	8820	433	0880	218	7375	607	.985 1608	2 395	50		8 173 6 174 4 175 2
	20	9253	433	0662	218	7983	608	.984 9213	2 395	40		9 195 3 196 2 197 1
	30	9686	433	0444	218	8591	608	.984 6818	2 395	30		
	40	0 450 0119	432	0226	218	9199	608	.984 4424	2 394	20		Tangent
	50	0551	433	0008	219	9807	608	.984 2030	2 394	10		607 608 609
							608		2 394			1 60 7 60 8 60 9
45	0	0 450 0984		0.892 9789		0.504 0415		1.983 9636		0	15	2 121 4 121 6 121 8
	10	1417	433	9571	218	1023	608	.983 7244	2 392	50		3 182 1 182 4 182 7
	20	1850	433	9353	218	1631	608	.983 4851	2 393	40		4 242 8 243 2 243 6
	30	2283	433	9135	218	2239	608	.983 2459	2 392	30		5 303 5 304 0 304 5
	40	2716	433	8916	219	2847	608	.983 0068	2 391	20		6 364 2 364 8 365 4
	50	3149	433	8698	218	3455	608	.982 7677	2 391	10		7 424 9 425 6 426 3
			433		218		608		2 391			8 485 6 486 4 487 2
46	0	0.450 3582		0.892 8480		0.504 4063		1.982 5286		0	14	9 546 3 547 2 548 1
	10	4015	433	8261	219	4672	609	.982 2896	2 390	50		
	20	4447	432	8043	218	5280	608	.982 0506	2 390	40		Cotangent
	30	4880	433	7825	218	5888	608	.981 8117	2 389	30		2410 2400
	40	5313	433	7606	218	6496	608	.981 5728	2 389	20		1 241 0 240 0
	50	5746	433	7388	219	7105	609	.981 3340	2 388	10		2 482 0 480 0
							608		2 388			3 723 0 720 0
47	0	0.450 6179		0.892 7169		0.504 7713		1.981 0962		0	13	4 964 0 960 0
	10	6612	432	6951	218	8321	608	.980 8565	2 387	50		5 1205 0 1200 0
	20	7044	433	6732	219	8930	609	.980 6178	2 387	40		6 1446 0 1440 0
	30	7477	433	6514	218	9538	608	.980 3792	2 386	30		7 1687 0 1680 0
	40	7910	433	6295	219	0.505 0147	609	.980 1406	2 386	20		8 1928 0 1920 0
	50	8343	432	6077	219	0755	608	.979 9020	2 386	10		9 2169 0 2160 0
							608		2 385			
48	0	0.450 8775		0 892 5868		0.505 1363		1.979 6635		0	12	2390 2380
	10	9208	433	5640	218	1972	609	.979 4251	2 384	50		1 239 0 238 0
	20	9641	433	5421	219	2581	609	.979 1866	2 385	40		2 478 0 476 0
	30	0.451 0074	432	5202	219	3189	608	.978 9483	2 383	30		3 717 0 714 0
	40	0506	433	4984	218	3798	609	.978 7100	2 383	20		4 956 0 952 0
	50	0939	433	4765	219	4406	609	.978 4717	2 383	10		5 1195 0 1190 0
							608		2 383			6 1434 0 1428 0
49	0	0.451 1372		0.892 4546		0.505 5015		1.978 2334		0	11	7 1673 0 1666 0
	10	1804	432	4328	218	5624	609	.977 9953	2 381	50		8 1912 0 1904 0
	20	2237	433	4109	219	6233	609	.977 7571	2 382	40		9 2151 0 2142 0
	30	2670	432	3890	219	6841	608	.977 5190	2 381	30		
	40	3102	432	3671	219	7450	609	.977 2810	2 380	20		
	50	3535	433	3452	218	8059	609	.977 0430	2 380	10		
			432		218		609		2 380			
50	0	0.451 3967		0.892 3234		0.505 8668		1 976 8050		0	10	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

63° 10'

26° 50'

'	"	Sine	Diff.	Cosine	Diff.	Tangent	Diff.	Cotangent	Diff.			Proportional Parts
50	0	0.451 3967		0.892 3234		0.505 8688		1.976 8050		0	10	
	10	4400	433	3015	219	9277	609	.976 5671	2 379	50		
	20	4833	433	2796	219	9886	609	.976 3292	2 378	40		
	30	5265	433	2577	219	0.506 0495	609	.976 0914	2 378	30		
	40	5698	433	2358	219	1104	609	.975 8536	2 378	20		
	50	6130	433	2139	219	1713	609	.975 6159	2 377	10		
51	0	0.451 6563		0.892 1920		0.506 2322		1.975 3782		0	9	
	10	6996	433	1701	219	2931	609	.975 1406	2 376	50		
	20	7428	432	1482	219	3540	609	.974 9030	2 376	40		
	30	7861	433	1263	219	4149	609	.974 6654	2 375	30		
	40	8293	432	1044	219	4758	609	.974 4279	2 374	20		
	50	8726	432	0825	219	5367	610	.974 1905	2 374	10		
52	0	0.451 9158		0.892 0606		0.506 5977		1.973 9531		0	8	
	10	9591	433	0387	219	6586	609	.973 7157	2 374	50		
	20	0.452 0023	432	0168	219	7195	609	.973 4784	2 373	40		
	30	0455	433	0.891 9949	220	7804	610	.973 2411	2 372	30		
	40	0888	432	9729	219	8414	609	.973 0039	2 372	20		
	50	1320	433	9510	219	9023	610	.972 7667	2 371	10		
53	0	0.452 1753		0.891 9291		0.506 9633		1.972 5296		0	7	
	10	2185	432	9072	219	0.507 0242	609	.972 2925	2 371	50		
	20	2618	433	8853	219	0851	609	.972 0554	2 371	40		
	30	3050	432	8633	220	1461	610	.971 8184	2 370	30		
	40	3482	432	8414	219	2070	609	.971 5815	2 369	20		
	50	3915	432	8195	220	2680	610	.971 3445	2 370	10		
54	0	0.452 4347		0.891 7975		0.507 3290		1.971 1077		0	6	
	10	4779	432	7756	219	3899	609	.970 8709	2 368	50		
	20	5212	433	7537	219	4509	610	.970 6341	2 368	40		
	30	5644	432	7317	220	5118	609	.970 3973	2 368	30		
	40	6076	432	7098	219	5728	610	.970 1607	2 366	20		
	50	6509	433	6878	220	6338	610	.969 9240	2 367	10		
55	0	0.452 6941		0.891 6659		0.507 6948		1.969 6874		0	5	
	10	7373	432	6439	220	7557	609	.969 4509	2 365	50		
	20	7806	433	6220	219	8167	610	.969 2144	2 365	40		
	30	8238	432	6000	220	8777	610	.968 9779	2 365	30		
	40	8670	432	5781	219	9387	610	.968 7415	2 364	20		
	50	9102	433	5561	220	9997	610	.968 5051	2 364	10		
56	0	0.452 9535		0.891 5342		0.508 0607		1.968 2688		0	4	
	10	9967	432	5122	220	1217	610	.968 0325	2 363	50		
	20	0.453 0399	432	4902	220	1827	610	.967 7963	2 362	40		
	30	0831	432	4683	219	2437	610	.967 5601	2 362	30		
	40	1263	432	4463	220	3047	610	.967 3240	2 361	20		
	50	1696	432	4243	219	3657	610	.967 0879	2 361	10		
57	0	0.453 2128		0.891 4024		0.508 4267		1.966 8518		0	3	
	10	2560	432	3804	220	4877	610	.966 6158	2 360	50		
	20	2992	432	3584	220	5487	611	.966 3798	2 359	40		
	30	3424	432	3364	220	6098	610	.966 1439	2 359	30		
	40	3856	432	3145	219	6708	610	.965 9080	2 359	20		
	50	4288	433	2925	220	7318	611	.965 6722	2 358	10		
58	0	0.453 4721		0.891 2705		0.508 7929		1.965 4364		0	2	
	10	5153	432	2485	220	8539	610	.965 2007	2 357	50		
	20	5585	432	2265	220	9149	610	.964 9650	2 357	40		
	30	6017	432	2045	220	9760	611	.964 7293	2 357	30		
	40	6449	432	1825	220	0.509 0370	610	.964 4937	2 356	20		
	50	6881	432	1605	220	0980	611	.964 2582	2 355	10		
59	0	0.453 7313		0.891 1385		0.509 1591		1.964 0227		0	1	
	10	7745	432	1165	220	2201	610	.963 7872	2 355	50		
	20	8177	432	0945	220	2812	611	.963 5518	2 354	40		
	30	8609	432	0725	220	3423	610	.963 3164	2 354	30		
	40	9041	432	0505	220	4033	611	.963 0810	2 354	20		
	50	9473	432	0285	220	4644	610	.962 8458	2 352	10		
60	0	0.453 9905		0.891 0065		0.509 5254		1.962 6105		0	0	
		Cosine	Diff.	Sine	Diff.	Cotangent	Diff.	Tangent	Diff.	"	'	Proportional Parts

63° 0'

27° 0'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
0	0	0.453 9905		0.891 0065		0.509 5254		1.962 6105		0	60	Sine
	10	0.454 0337	432	0.890 9845	220	5865	611	.962 3753	2 352	50		431 432
	20	0769	432	9625	220	6476	611	.962 1401	2 351	40		1 43 1 43 2
	30	1201	432	9405	220	7087	611	.961 9050	2 350	30		2 86 2 86 4
	40	1633	432	9185	221	7697	610	.961 6700	2 351	20		3 129 3 129 6
	50	2065	432	8964	220	8308	611	.961 4349	2 349	10		4 172 4 172 8
1	0	0.454 2497		0.890 8744		0.509 8919		1.961 2000		0	59	Sine
	10	2929	432	8524	220	9530	611	.960 9650	2 350	50		5 215 5 216 0
	20	3360	431	8304	220	0.510 0141	611	.960 7301	2 349	40		6 258 6 259 2
	30	3792	432	8083	221	0752	611	.960 4953	2 348	30		7 301 7 302 4
	40	4224	432	7863	220	1363	611	.960 2605	2 348	20		8 344 8 345 6
	50	4656	432	7643	220	1974	611	.960 0257	2 347	10		9 387 9 388 8
2	0	0.454 5088		0.890 7423		0.510 2585		1.959 7910		0	58	Cosine
	10	5520	432	7202	221	3196	611	.959 5564	2 346	50		220 221 222
	20	5952	432	6982	220	3807	611	.959 3218	2 346	40		1 22 0 22 1 22 2
	30	6383	431	6761	221	4418	611	.959 0872	2 346	30		2 44 0 44 2 44 4
	40	6815	432	6541	220	5029	611	.958 8526	2 346	20		3 66 0 66 3 66 6
	50	7247	432	6321	221	5640	612	.958 6182	2 344	10		4 88 0 88 4 88 8
3	0	0.454 7679		0.890 6100		0.510 6252		1.958 3837		0	57	Sine
	10	8111	432	5880	220	6863	611	.958 1493	2 344	50		5 110 0 110 5 111 0
	20	8542	431	5659	221	7474	611	.957 9150	2 343	40		6 132 0 132 6 133 2
	30	8974	432	5439	220	8085	611	.957 6807	2 343	30		7 154 0 154 7 155 4
	40	9406	432	5218	221	8697	612	.957 4464	2 343	20		8 176 0 176 8 177 6
	50	9838	431	4997	220	9308	611	.957 2122	2 342	10		9 198 0 198 9 199 8
4	0	0.455 0269		0.890 4777		0.510 9919		1.956 9780		0	56	Tangent
	10	0701	432	4556	221	0.511 0531	612	.956 7439	2 341	50		610 611
	20	1133	432	4336	220	1142	611	.956 5098	2 341	40		1 61 0 61 1
	30	1564	431	4115	221	1754	612	.956 2757	2 341	30		2 122 0 122 2
	40	1996	432	3894	220	2365	611	.956 0417	2 340	20		3 183 0 183 3
	50	2428	431	3674	221	2977	612	.955 8078	2 339	10		4 244 0 244 4
5	0	0.455 2859		0.890 3453		0.511 3588		1.955 5739		0	55	Sine
	10	3291	432	3232	221	4200	612	.955 3400	2 339	50		5 305 0 305 5
	20	3723	432	3011	221	4812	612	.955 1062	2 338	40		6 366 0 366 6
	30	4154	431	2791	220	5423	611	.954 8724	2 338	30		7 427 0 427 7
	40	4586	432	2570	221	6035	612	.954 6387	2 337	20		8 488 0 488 8
	50	5017	431	2349	221	6647	612	.954 4050	2 337	10		9 549 0 549 9
6	0	0.455 5449		0.890 2128		0.511 7259		1.954 1713		0	54	Cotangent
	10	5881	432	1907	221	7870	611	.953 9377	2 336	50		612 613
	20	6312	432	1686	221	8482	612	.953 7042	2 335	40		1 61 2 61 3
	30	6744	431	1465	221	9094	612	.953 4707	2 335	30		2 122 4 122 6
	40	7175	431	1244	220	9706	612	.953 2372	2 334	20		3 183 6 183 9
	50	7607	431	1024	221	0.512 0318	612	.953 0038	2 334	10		4 244 8 245 2
7	0	0.455 8038		0.890 0803		0.512 0930		1.952 7704		0	53	Sine
	10	8470	432	0582	221	1542	612	.952 5371	2 333	50		5 306 0 306 5
	20	8901	431	0361	221	2154	612	.952 3038	2 333	40		6 367 2 367 8
	30	9333	432	0140	221	2766	612	.952 0705	2 332	30		7 428 4 429 1
	40	9764	431	0.889 9918	222	3378	612	.951 8373	2 332	20		8 489 6 490 4
	50	0.456 0196	432	9697	221	3990	612	.951 6042	2 331	10		9 550 8 551 7
8	0	0.456 0627		0.889 9476		0.512 4602		1.951 3711		0	52	Cotangent
	10	1059	432	9255	221	5214	612	.951 1380	2 331	50		2350 2340
	20	1490	431	9034	221	5826	612	.950 9050	2 330	40		1 235 0 234 0
	30	1922	432	8813	221	6438	612	.950 6720	2 330	30		2 470 0 468 0
	40	2353	431	8592	221	7051	613	.950 4391	2 329	20		3 705 0 702 0
	50	2785	431	8370	221	7663	612	.950 2062	2 329	10		4 940 0 936 0
9	0	0.456 3216		0.889 8149		0.512 8275		1.949 9733		0	51	Sine
	10	3647	431	7928	221	8888	613	.949 7405	2 328	50		5 1175 0 1170 0
	20	4079	432	7707	221	9500	612	.949 5078	2 327	40		6 1410 0 1404 0
	30	4510	431	7485	222	0.513 0112	612	.949 2750	2 328	30		7 1645 0 1638 0
	40	4941	431	7264	221	0725	613	.949 0424	2 326	20		8 1880 0 1872 0
	50	5373	432	7043	221	1337	612	.948 8097	2 327	10		9 2115 0 2106 0
10	0	0.456 5804		0.889 6822		0.513 1950		1.948 5772		0	50	Cotangent
												2330 2320
												1 233 0 232 0
												2 466 0 464 0
												3 699 0 696 0
												4 932 0 928 0
												5 1165 0 1160 0
												6 1398 0 1392 0
												7 1631 0 1624 0
												8 1864 0 1856 0
												9 2097 0 2088 0
												Proportional Parts

62° 50'

27° 10'

	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
10	0	0.456 5804		0.889 6822		0.513 1950		1.948 5772		0	50	
	10	6235	431	6600	222	2562	612	.948 3446	2 326	50		Sine
	20	6667	432	6379	221	3175	613	.948 1121	2 325	40		430 431 432
	30	7098	431	6157	222	3787	612	.947 8797	2 324	30		1 43 0 43 1 43 2
	40	7529	431	5936	221	4400	613	.947 6473	2 324	20		2 86 0 86 2 86 4
	50	7961	432	5714	222	5013	613	.947 4149	2 324	10		3 129 0 129 3 129 6
			431		221		612		2 323			4 172 0 172 4 172 8
11	0	0.456 8392		0.889 5493		0.513 5625		1.947 1826		0	49	
	10	8823	431	5272	221	6238	613	.946 9503	2 323	50		5 215 0 215 5 216 0
	20	9254	431	5050	222	6851	613	.946 7181	2 322	40		6 258 0 258 6 259 2
	30	9686	432	4828	222	7463	612	.946 4859	2 322	30		7 301 0 301 7 302 4
	40	0.457 0117	431	4607	221	8076	613	.946 2537	2 322	20		8 344 0 344 8 345 6
	50	0548	431	4385	222	8689	613	.946 0216	2 321	10		9 387 0 387 9 388 8
			431		221		613		2 320			
12	0	0.457 0979		0.889 4164		0.513 9302		1.945 7896		0	48	
	10	1410	431	3942	222	9915	613	.945 5575	2 321	50		Cosine
	20	1842	432	3720	222	0.514 0528	613	.945 3256	2 319	40		221 222 223
	30	2273	431	3499	221	1141	613	.945 0936	2 320	30		1 22 1 22 2 22 3
	40	2704	431	3277	222	1754	613	.945 8618	2 318	20		2 44 2 44 4 44 6
	50	3135	431	3055	222	2367	613	.944 8618	2 318	10		3 66 3 66 6 66 9
			431		221		613	.944 6299	2 319			4 88 4 88 8 89 2
13	0	0.457 3566		0.889 2834		0.514 2980		1.944 3981		0	47	
	10	3997	431	2612	222	3593	613	.944 1664	2 317	50		5 110 5 111 0 111 5
	20	4429	432	2390	222	4206	613	.943 9347	2 317	40		6 132 6 133 2 133 8
	30	4860	431	2168	222	4819	613	.943 7030	2 317	30		7 154 7 155 4 156 1
	40	5291	431	1947	221	5432	613	.943 4714	2 316	20		8 176 8 177 6 178 4
	50	5722	431	1725	222	6045	613	.943 2398	2 316	10		9 198 9 199 8 200 7
			431		222		613		2 315			
14	0	0.457 6153		0.889 1503		0.514 6658		1.943 0083		0	46	
	10	6584	431	1281	222	7272	614	.942 7768	2 315	50		Tangent
	20	7015	431	1059	222	7885	613	.942 5453	2 315	40		612 613
	30	7446	431	0837	222	8498	613	.942 3139	2 314	30		1 61 2 61 3
	40	7877	431	0615	222	9112	614	.942 0826	2 314	20		2 122 4 122 6
	50	8308	431	0393	222	9725	613	.941 8513	2 313	10		3 183 6 183 9
			431		222		613		2 313			4 244 8 245 2
15	0	0.457 8739		0.889 0171		0.515 0338		1.941 6200		0	45	
	10	9170	431	0 888 9949	222	0952	614	.941 3888	2 312	50		5 306 0 306 5
	20	9601	431	9727	222	1565	613	.941 1576	2 312	40		6 367 2 367 8
	30	0.458 0032	431	9505	222	2179	614	.940 9264	2 312	30		7 428 4 429 1
	40	0463	431	9283	222	2792	613	.940 6953	2 311	20		8 489 6 490 4
	50	0894	431	9061	222	3406	614	.940 4643	2 310	10		9 550 8 551 7
			431		222		613		2 310			
16	0	0.458 1325		0.888 8839		0.515 4019		1.940 2333		0	44	
	10	1756	431	8617	222	4633	614	.940 0023	2 310	50		614 615
	20	2187	431	8395	222	5247	614	.939 7714	2 309	40		1 61 4 61 5
	30	2618	431	8173	222	5860	613	.939 5405	2 309	30		2 122 8 123 0
	40	3049	431	7951	223	6474	614	.939 3096	2 309	20		3 184 2 184 5
	50	3480	430	7728	222	7088	614	.939 0789	2 308	10		4 245 6 246 0
			430		222		614		2 308			5 307 0 307 5
17	0	0.458 3910		0.888 7506		0.515 7702		1.938 8481		0	43	
	10	4341	431	7284	222	8315	613	.938 6174	2 307	50		Cotangent
	20	4772	431	7062	223	8929	614	.938 3867	2 307	40		2330 2320
	30	5203	431	6839	223	9543	614	.938 1561	2 306	30		1 233 0 232 0
	40	5634	431	6617	222	0.516 0157	614	.937 9255	2 306	20		2 466 0 461 0
	50	6065	431	6395	223	0771	614	.937 6950	2 305	10		3 699 0 696 0
			431		223		614		2 305			4 932 0 928 0
18	0	0.458 6496		0.888 6172		0.516 1385		1.937 4645		0	42	
	10	6926	430	5950	222	1999	614	.937 2341	2 304	50		5 1165 0 1160 0
	20	7357	431	5728	223	2613	614	.937 0037	2 304	40		6 1398 0 1392 0
	30	7788	430	5505	222	3227	614	.936 7733	2 304	30		7 1631 0 1624 0
	40	8219	430	5283	223	3841	614	.936 5430	2 303	20		8 1864 0 1856 0
	50	8649	431	5060	222	4455	614	.936 3127	2 302	10		9 2097 0 2088 0
			431		222		614		2 302			
19	0	0.458 9080		0.888 4838		0.516 5069		1.936 0825		0	41	
	10	9511	431	4615	223	5683	614	.935 8523	2 302	50		2310 2300
	20	9942	431	4393	222	6298	615	.935 6221	2 302	40		1 231 0 230 0
	30	0.459 0372	430	4170	223	6912	614	.935 3920	2 301	30		2 462 0 460 0
	40	0803	431	3948	222	7526	614	.935 1620	2 300	20		3 694 0 690 0
	50	1234	431	3725	222	8140	615	.934 9320	2 300	10		4 924 0 920 0
			431		222		615		2 300			5 1155 0 1150 0
20	0	0.459 1665		0.888 3503		0.516 8755		1.934 7020		0	40	
												6 1386 0 1380 0
												7 1617 0 1610 0
												8 1848 0 1840 0
												9 2079 0 2070 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

27° 20'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff	'	"	Proportional Parts
20	0	0 459 1665		0.888 3503		0.516 8755		1.934 7020		0	40	
	10	2095	430	3280	223	9369	614	.934 4721	2 299	50		Sine
	20	2526	431	3057	223	9983	615	.934 2422	2 299	40		430 431
	30	2957	431	2835	222	0.517 0598	615	.934 0123	2 299	30		1 43 0 43 1
	40	3387	430	2612	223	1212	614	.933 7825	2 298	20		2 86 0 86 2
	50	3818	431	2389	223	1827	615	.933 5528	2 297	10		3 129 0 129 3
			430		223		614		2 297			4 172 0 172 4
21	0	0.459 4248		0.888 2166		0.517 2441		1.933 3231		0	39	
	10	4679	431	1944	222	3056	615	.933 0934	2 297	50		5 215 0 215 5
	20	5110	431	1721	223	3670	614	.932 8638	2 296	40		6 258 0 258 6
	30	5540	430	1498	223	4285	615	.932 6342	2 296	30		7 301 0 301 7
	40	5971	431	1275	222	4900	615	.932 4046	2 296	20		8 344 0 344 8
	50	6401	430	1053	223	5514	614	.932 1751	2 295	10		9 387 0 387 9
			431		223		615		2 294			
22	0	0.459 6832		0.888 0830		0.517 6129		1.931 9457		0	38	
	10	7263	431	0607	223	6744	615	.931 7163	2 294	50		Cosine
	20	7693	430	0384	223	7358	614	.931 4869	2 294	40		222 223 224
	30	8124	431	0161	223	7973	615	.931 2576	2 293	30		1 22 2 22 3 22 4
	40	8554	430	0 887 9938	223	8588	615	.931 0283	2 293	20		2 41 4 11 6 44 8
	50	8985	431	9715	223	9203	615	.930 7991	2 292	10		3 66 6 66 0 67 2
			430		223		615		2 292			4 88 8 89 2 89 6
23	0	0 459 9415		0 887 9492		0 517 9818		1.930 5699		0	37	
	10	9846	431	9269	223	0.518 0433	615	.930 3407	2 292	50		5 111 0 111 5 112 0
	20	0 460 0276	430	9046	223	1048	615	.930 1116	2 291	40		6 133 2 133 8 134 4
	30	0707	431	8823	223	1663	615	.929 8825	2 291	30		7 155 4 156 1 156 8
	40	1137	430	8600	223	2278	615	.929 6535	2 290	20		8 177 6 178 4 179 2
	50	1567	430	8377	223	2893	615	.929 4245	2 290	10		9 199 8 200 7 201 6
			431		223		615		2 289			
24	0	0 460 1998		0.887 8154		0 518 3508		1.929 1956		0	36	
	10	2428	430	7931	223	4123	615	.928 9667	2 289	50		Tangent
	20	2859	431	7708	223	4738	615	.928 7378	2 289	40		614 615
	30	3289	430	7484	224	5353	615	.928 5090	2 288	30		1 61 4 61 5
	40	3719	430	7261	223	5968	615	.928 2802	2 288	20		2 122 8 123 0
	50	4150	431	7038	223	6583	615	.928 0515	2 287	10		3 181 2 181 5
			430		223		616		2 287			4 245 6 246 0
25	0	0.460 4580		0 887 6815		0.518 7199		1 927 8228		0	35	
	10	5011	431	6592	223	7814	615	.927 5942	2 286	50		5 307 0 307 5
	20	5441	430	6368	224	8429	615	.927 3656	2 286	40		6 368 4 369 0
	30	5871	430	6145	223	9045	616	.927 1370	2 286	30		7 429 8 430 5
	40	6302	431	5922	223	9660	615	.926 9085	2 285	20		8 491 2 492 0
	50	6732	430	5698	223	0 519 0275	615	.926 6800	2 284	10		9 552 6 553 5
			430		223		616		2 284			
26	0	0 460 7162		0.887 5475		0.519 0891		1.926 4516		0	34	
	10	7592	430	5252	223	1506	615	.926 2232	2 284	50		616 617
	20	8023	431	5028	224	2122	615	.925 9949	2 283	40		1 61 6 61 7
	30	8453	430	4805	223	2737	615	.925 7666	2 283	30		2 123 2 123 4
	40	8883	431	4581	224	3353	616	.925 5383	2 283	20		3 184 8 185 1
	50	9314	430	4358	223	3968	615	.925 3101	2 282	10		4 246 4 246 8
			430		224		616		2 282			5 308 0 308 5
27	0	0.460 9744		0.887 4134		0.519 4584		1.925 0819		0	33	
	10	0.461 0174	430	3911	223	5200	615	.924 8538	2 281	50		6 369 6 370 2
	20	0604	430	3687	223	5815	616	.924 6257	2 280	40		7 431 2 431 9
	30	1034	430	3464	224	6431	616	.924 3977	2 280	30		8 492 8 493 6
	40	1465	431	3240	224	7047	616	.924 1697	2 280	20		9 554 4 555 3
	50	1895	430	3017	223	7663	615	.923 9417	2 279	10		
			430		224		615		2 279			
28	0	0.461 2325		0.887 2793		0 519 8278		1 923 7138		0	32	
	10	2755	430	2570	223	8894	616	.923 4859	2 279	50		Cotangent
	20	3185	430	2346	224	9510	616	.923 2581	2 278	40		2300 2290
	30	3615	430	2122	224	0.520 0126	616	.923 0303	2 278	30		1 230 0 229 0
	40	4046	431	1899	223	0742	616	.922 8026	2 277	20		2 460 0 458 0
	50	4476	430	1675	224	1358	616	.922 5749	2 277	10		3 690 0 687 0
			430		224		616		2 277			4 920 0 916 0
29	0	0.461 4906		0.887 1451		0.520 1974		1.922 3472		0	31	
	10	5336	430	1227	224	2590	616	.922 1196	2 276	50		5 1150 0 1145 0
	20	5766	430	1004	223	3206	616	.921 8920	2 276	40		6 1380 0 1374 0
	30	6196	430	0780	224	3822	616	.921 6645	2 275	30		7 1610 0 1603 0
	40	6626	430	0556	224	4438	616	.921 4370	2 275	20		8 1840 0 1832 0
	50	7056	430	0332	224	5054	616	.921 2095	2 274	10		9 2070 0 2061 0
			430		224		617		2 274			
30	0	0.461 7486		0.887 0108		0 520 5671		1.920 9821		0	30	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff.	"	'	Proportional Parts

62° 30'

27° 30'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff.			Proportional Parts
30	0	0.461 7486		0.887 0108		0.520 5671		1.920 9821		0	30	
	10	7916	430	0.886 9884	224	6287	616	.920 7548	2 273	50		
	20	8346	430	9661	223	6903	616	.920 5274	2 274	40		
	30	8776	430	9437	224	7519	616	.920 3002	2 272	30		
	40	9206	430	9213	224	8136	617	.920 0729	2 273	20		
	50	9636	430	8989	224	8752	616	.919 8457	2 272	10		
31	0	0.462 0066		0.886 8765		0.520 9368		1.919 6185		0	29	Sine
	10	0496	430	8541	224	9985	617	.919 3915	2 270	50		429 430
	20	0926	430	8317	224	0.521 0601	616	.919 1644	2 271	40		1 42 9 43 0
	30	1356	430	8093	224	1218	617	.918 9374	2 270	30		2 85 8 86 0
	40	1786	430	7869	224	1834	616	.918 7104	2 270	20		3 128 7 129 0
	50	2216	430	7645	225	2451	617	.918 4834	2 270	10		4 171 6 172 0
32	0	0.462 2846		0.886 7420		0.521 3067		1.918 2665		0	28	5 214 5 215 0
	10	3076	430	7196	224	3684	617	.918 0297	2 268	50		6 257 4 258 0
	20	3506	429	6972	224	4300	616	.917 8029	2 268	40		7 300 3 301 0
	30	3935	430	6748	224	4917	617	.917 5761	2 267	30		8 343 2 344 0
	40	4365	430	6524	224	5534	616	.917 3494	2 267	20		9 386 1 387 0
	50	4795	430	6300	225	6150	617	.917 1227	2 267	10		
33	0	0.462 5225		0.886 6075		0.521 6767		1.916 8960		0	27	Cosine
	10	5655	430	5851	224	7384	617	.916 6694	2 266	50		223 224 225
	20	6085	429	5627	224	8001	617	.916 4429	2 265	40		1 22 3 22 4 22 5
	30	6514	430	5403	224	8617	616	.916 2163	2 266	30		2 44 6 44 8 45 0
	40	6944	430	5178	225	9234	617	.915 9899	2 264	20		3 66 9 67 2 67 5
	50	7374	430	4954	224	9851	617	.915 7634	2 265	10		4 89 2 89 6 90 0
34	0	0.462 7804		0.886 4730		0.522 0468		1.915 5370		0	26	5 111 5 112 0 112 5
	10	8234	430	4505	224	1085	617	.915 3107	2 263	50		6 143 8 144 4 145 0
	20	8663	429	4281	224	1702	617	.915 0844	2 263	40		7 156 1 156 8 157 5
	30	9093	430	4056	225	2319	617	.914 8581	2 263	30		8 178 4 179 2 180 0
	40	9523	430	3832	224	2936	617	.914 6319	2 262	20		9 200 7 201 6 202 5
	50	9953	429	3608	225	3553	617	.914 4057	2 262	10		
35	0	0.463 0382		0.886 3383		0.522 4170		1.914 1795		0	25	Tangent
	10	0812	430	3159	224	4787	617	.913 9534	2 261	50		616 617 618
	20	1242	430	2934	225	5405	618	.913 7274	2 260	40		1 61 6 61 7 61 8
	30	1671	429	2710	224	6022	617	.913 5014	2 260	30		2 123 2 123 4 123 6
	40	2101	430	2485	225	6639	617	.913 2754	2 260	20		3 181 8 185 1 185 4
	50	2531	429	2260	224	7256	617	.913 0495	2 259	10		4 216 4 216 8 247 2
36	0	0.463 2960		0.886 2036		0.522 7874		1.912 8236		0	24	5 308 0 308 5 309 0
	10	3390	430	1811	225	8491	617	.912 5977	2 259	50		6 369 6 370 2 370 8
	20	3820	430	1587	224	9108	617	.912 3719	2 258	40		7 431 2 431 9 432 6
	30	4249	429	1362	225	9726	618	.912 1462	2 257	30		8 492 8 493 6 494 4
	40	4679	429	1137	225	0.523 0343	617	.911 9204	2 256	20		9 554 4 555 3 556 2
	50	5108	430	0912	224	0961	617	.911 6948	2 257	10		
37	0	0.463 5538		0.886 0688		0.523 1578		1.911 4691		0	23	Cotangent
	10	5968	430	0463	225	2196	618	.911 2435	2 256	50		2280 2270
	20	6397	429	0238	225	2813	617	.911 0180	2 255	40		1 228 0 227 0
	30	6827	430	0013	225	3431	618	.910 7924	2 256	30		2 456 0 454 0
	40	7256	429	0.885 9789	224	4048	617	.910 5670	2 254	20		3 684 0 681 0
	50	7686	429	9564	225	4666	618	.910 3415	2 255	10		4 912 0 908 0
38	0	0.463 8115		0.885 9339		0.523 5284		1.910 1162		0	22	5 1140 0 1135 0
	10	8545	430	9114	225	5901	617	.909 8908	2 254	50		6 1368 0 1362 0
	20	8974	429	8889	225	6519	618	.909 6655	2 253	40		7 1596 0 1589 0
	30	9404	430	8664	225	7137	618	.909 4402	2 252	30		8 1824 0 1816 0
	40	9833	429	8439	225	7755	618	.909 2150	2 252	20		9 2052 0 2043 0
	50	0 464 0263	429	8214	225	8373	617	.908 9898	2 251	10		
39	0	0.464 0692		0.885 7989		0 523 8990		1.908 7647		0	21	2260 2250
	10	1122	430	7764	225	9608	618	.908 5396	2 251	50		1 226 0 225 0
	20	1551	429	7539	225	0 524 0226	618	.908 3145	2 250	40		2 452 0 450 0
	30	1980	430	7314	225	0844	618	.908 0895	2 249	30		3 678 0 675 0
	40	2410	429	7089	225	1462	618	.907 8646	2 249	20		4 904 0 900 0
	50	2839	430	6864	225	2080	618	.907 6396	2 250	10		5 1130 0 1125 0
40	0	0.464 3269		0.885 6639		0.524 2698		1.907 4147		0	20	6 1356 0 1350 0
												7 1582 0 1575 0
												8 1808 0 1800 0
												9 2034 0 2025 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

27° 40'

'	"	Sine	Diff.	Cosine	Diff.	Tangent	Diff.	Cotangent	Diff.			Proportional Parts
40	0	0.464 3269		0.885 6639		0.524 2698		1.907 4147		0	20	
	10	3698	429	6414	225	3316	618	.907 1899	2 248	50		
	20	4127	429	6189	225	3934	619	.906 9651	2 248	40		
	30	4557	430	5964	225	4553	619	.906 7403	2 248	30		
	40	4986	429	5738	226	5171	618	.906 5156	2 247	20		
	50	5415	429	5513	225	5789	618	.906 2909	2 247	10		
			430		225		618		2 246			
41	0	0.464 5845		0.885 5288		0.524 6407		1.906 0663		0	19	
	10	6274	429	5063	225	7026	619	.905 8417	2 246	50		Sine
	20	6703	429	4838	225	7644	618	.905 6171	2 246	40		428 429 430
	30	7133	430	4612	226	8262	618	.905 3926	2 245	30		1 42 8 42 9 43 0
	40	7562	429	4387	225	8881	619	.905 1681	2 245	20		2 85 6 85 8 86 0
	50	7991	429	4162	226	9499	618	.904 9437	2 244	10		3 128 4 128 7 129 0
							618		2 244			4 171 2 171 6 172 0
42	0	0.464 8420		0.885 3936		0.525 0117		1.904 7193		0	18	
	10	8850	430	3711	225	0736	619	.904 4950	2 243	50		5 214 0 214 5 215 0
	20	9279	429	3485	226	1354	618	.904 2707	2 243	40		6 256 8 257 4 258 0
	30	9708	429	3260	225	1973	619	.904 0464	2 242	30		7 299 6 300 3 301 0
	40	0.465 0137	430	3035	226	2591	618	.903 8222	2 242	20		8 342 4 343 2 344 0
	50	0567	429	2809	225	3210	619	.903 5980	2 242	10		9 385 2 386 1 387 0
							619		2 242			
43	0	0.465 0966		0.885 2584		0.525 3829		1.903 3738		0	17	
	10	1425	429	2358	226	4447	618	.903 1497	2 241	50		Cosine
	20	1854	429	2133	225	5066	619	.902 9257	2 240	40		225 226 227
	30	2283	429	1907	226	5685	619	.902 7017	2 240	30		1 22 5 22 6 22 7
	40	2712	429	1682	225	6303	618	.902 4777	2 240	20		2 45 0 45 2 45 4
	50	3142	430	1456	226	6922	619	.902 2538	2 239	10		3 67 5 67 8 68 1
							619		2 239			4 90 0 90 4 90 8
44	0	0.465 3571		0.885 1230		0.525 7541		1.902 0299		0	16	
	10	4000	429	1005	225	8160	619	.901 8060	2 239	50		5 112 5 113 0 113 5
	20	4429	429	0779	226	8779	619	.901 5822	2 238	40		6 135 0 135 6 136 2
	30	4858	429	0553	225	9398	619	.901 3584	2 238	30		7 157 5 158 2 158 9
	40	5287	429	0328	226	0017	619	.901 1347	2 237	20		8 180 0 180 8 181 6
	50	5716	429	0102	226	0636	619	.900 9110	2 237	10		9 202 5 203 4 204 3
							619		2 236			
45	0	0.465 6145		0.884 9876		0.526 1255		1.900 6874		0	15	
	10	6574	429	9651	225	1874	619	.900 4638	2 236	50		Tangent
	20	7003	429	9425	226	2493	619	.900 2402	2 236	40		618 619 620
	30	7432	429	9199	226	3112	619	.900 0167	2 235	30		1 61 8 61 9 62 0
	40	7861	429	8973	226	3731	619	.899 7932	2 235	20		2 123 6 123 8 124 0
	50	8290	429	8747	225	4350	619	.899 5698	2 234	10		3 185 4 185 7 186 0
							619		2 234			4 247 2 247 6 248 0
46	0	0.465 8719		0.884 8522		0.526 4969		1.899 3464		0	14	
	10	9148	429	8296	226	5588	619	.899 1230	2 234	50		5 309 0 309 5 310 0
	20	9577	429	8070	226	6208	620	.898 8997	2 233	40		6 370 8 371 4 372 0
	30	0.466 0006	429	7844	226	6827	619	.898 6764	2 233	30		7 432 6 433 3 434 0
	40	0435	429	7618	226	7446	620	.898 4532	2 232	20		8 494 4 495 2 496 0
	50	0864	429	7392	226	8066	619	.898 2300	2 232	10		9 556 2 557 1 558 0
							619		2 232			
47	0	0.466 1293		0.884 7166		0.526 8685		1.898 0068		0	13	
	10	1722	429	6940	226	9304	619	.897 7837	2 231	50		Cotangent
	20	2151	429	6714	226	9924	620	.897 5606	2 231	40		2250 2240
	30	2580	429	6488	226	0543	619	.897 3376	2 230	30		1 225 0 224 0
	40	3009	429	6262	226	1163	620	.897 1146	2 229	20		2 450 0 448 0
	50	3438	428	6036	226	1782	619	.896 8917	2 229	10		3 675 0 672 0
							620		2 229			4 900 0 896 0
48	0	0.466 3866		0.884 5810		0.527 2402		1.896 6688		0	12	
	10	4295	429	5584	226	3021	619	.896 4459	2 229	50		5 1125 0 1120 0
	20	4724	429	5357	227	3641	620	.896 2231	2 228	40		6 1350 0 1344 0
	30	5153	429	5131	226	4261	620	.896 0003	2 228	30		7 1575 0 1568 0
	40	5582	429	4905	226	4880	619	.895 7776	2 227	20		8 1800 0 1792 0
	50	6011	428	4679	226	5500	620	.895 5549	2 227	10		9 2025 0 2016 0
							620		2 227			
49	0	0.466 6439		0.884 4453		0.527 6120		1.895 3322		0	11	
	10	6868	429	4226	227	6740	620	.895 1096	2 226	50		2230 2220
	20	7297	429	4000	226	7360	620	.894 8870	2 225	40		1 223 0 222 0
	30	7726	428	3774	226	7979	619	.894 6645	2 225	30		2 446 0 444 0
	40	8154	429	3548	227	8599	620	.894 4420	2 225	20		3 669 0 666 0
	50	8583	429	3321	226	9219	620	.894 2195	2 224	10		4 892 0 888 0
							620		2 224			5 1115 0 1110 0
50	0	0.466 9012		0.884 3095		0.527 9839		1.893 9971		0	10	
												6 1338 0 1332 0
												7 1561 0 1554 0
												8 1784 0 1776 0
												9 2007 0 1998 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff.	"	'	Proportional Parts

62° 10'

27° 50'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
50	0	0.466 9012		0.884 3095		0.527 9839		1.893 9971		0	10	
	10	9441	429	2869	226	0.528 0459	620	.893 7747	2 224	50		
	20	9869	428	2642	227	1079	620	.893 5524	2 223	40		
	30	0.467 0298	429	2416	226	1699	620	.893 3301	2 223	30		
	40	0727	428	2189	227	2319	620	.893 1078	2 222	20		
	50	1155	429	1963	226	2939	620	.892 8856	2 222	10		
51	0	0.467 1584		0.884 1736		0.528 3560		1.892 6635		0	9	
	10	2013	429	1510	226	4180	620	.892 4413	2 222	50		Sine
	20	2441	428	1283	227	4800	620	.892 2192	2 221	40		428 429
	30	2870	429	1057	226	5420	620	.891 9972	2 220	30		1 42 8 42 9
	40	3299	428	0830	227	6040	620	.891 7752	2 220	20		2 85 6 85 8
	50	3727	429	0604	226	6661	621	.891 5532	2 220	10		3 128 4 128 7
52	0	0.467 4156		0.884 0377		0.528 7281		1.891 3313		0	8	4 171 2 171 6
	10	4584	428	0150	227	7901	620	.891 1094	2 219	50		5 214 0 214 5
	20	5013	429	0 883 9924	226	8522	621	.890 8876	2 218	40		6 256 8 257 4
	30	5442	428	9697	227	9142	621	.890 6657	2 219	30		7 299 6 300 3
	40	5870	429	9471	226	9763	621	.890 4440	2 217	20		8 342 4 343 2
	50	6299	428	9244	227	0.529 0383	620	.890 2223	2 217	10		9 385 2 386 1
53	0	0.467 6727		0.883 9017		0.529 1004		1.890 0006		0	7	
	10	7156	429	8790	227	1024	620	.889 7789	2 217	50		Cosine
	20	7584	428	8564	226	2245	621	.889 5573	2 216	40		226 227 228
	30	8013	429	8337	227	2865	620	.889 3358	2 215	30		1 22 6 22 7 22 8
	40	8441	428	8110	227	3486	621	.889 1143	2 215	20		2 45 2 45 4 45 6
	50	8870	429	7883	227	4107	621	.888 8928	2 215	10		3 67 8 68 1 68 4
54	0	0.467 9298		0.883 7656		0.529 4727		1.888 6713		0	6	4 90 4 90 8 91 2
	10	9727	429	7429	227	5348	621	.888 4499	2 214	50		5 113 0 113 5 114 0
	20	0.468 0155	428	7203	226	5969	621	.888 2286	2 213	40		6 137 6 136 2 136 8
	30	0583	429	6976	227	6590	621	.888 0073	2 213	30		7 158 2 158 9 159 6
	40	1012	428	6749	227	7211	620	.887 7850	2 212	20		8 180 8 181 6 182 4
	50	1440	429	6522	227	7831	621	.887 5648	2 212	10		9 203 4 204 3 205 2
55	0	0.468 1869		0.883 6295		0.529 8452		1.887 3436		0	5	
	10	2297	428	6068	227	9073	621	.887 1224	2 212	50		Tangent
	20	2725	429	5841	227	9694	621	.886 9013	2 211	40		620 621 622
	30	3154	428	5614	227	0.530 0315	621	.886 6802	2 211	30		1 62 0 62 1 62 2
	40	3582	429	5387	227	0936	621	.886 4592	2 210	20		2 124 0 124 2 124 4
	50	4011	428	5160	227	1557	621	.886 2382	2 210	10		3 186 0 186 3 186 6
56	0	0.468 4439		0.883 4933		0.530 2178		1.886 0172		0	4	4 248 0 248 4 248 8
	10	4867	428	4705	228	2800	622	.885 7963	2 209	50		5 310 0 310 5 311 0
	20	5296	429	4478	227	3421	621	.885 5755	2 208	40		6 372 0 372 6 373 2
	30	5724	428	4251	227	4042	621	.885 3546	2 209	30		7 434 0 434 7 435 4
	40	6152	429	4024	227	4663	621	.885 1338	2 208	20		8 496 0 496 8 497 6
	50	6580	428	3797	228	5284	622	.884 9131	2 207	10		9 558 0 558 9 559 8
57	0	0.468 7009		0.883 3569		0.530 5906		1.884 6924		0	3	
	10	7437	428	3342	227	6527	621	.884 4717	2 207	50		Cotangent
	20	7865	429	3115	227	7148	622	.884 2511	2 206	40		2230 2220
	30	8293	428	2888	227	7770	622	.884 0305	2 206	30		1 223 0 222 0
	40	8722	429	2660	228	8391	621	.883 8099	2 206	20		2 446 0 444 0
	50	9150	428	2433	227	9013	622	.883 5894	2 205	10		3 669 0 666 0
58	0	0.468 9578		0.883 2206		0.530 9634		1.883 3690		0	2	4 892 0 888 0
	10	0.469 0006	428	1978	228	0.531 0256	622	.883 1485	2 205	50		5 1115 0 1110 0
	20	0434	429	1751	227	0877	621	.882 9281	2 204	40		6 1338 0 1332 0
	30	0863	428	1524	227	1499	622	.882 7078	2 203	30		7 1561 0 1554 0
	40	1291	429	1296	228	2120	621	.882 4875	2 203	20		8 1784 0 1776 0
	50	1719	428	1069	228	2742	622	.882 2672	2 202	10		9 2007 0 1998 0
59	0	0.469 2147		0.883 0841		0.531 3364		1.882 0470		0	1	
	10	2575	428	0614	227	3985	621	.881 8268	2 202	50		2210 2200
	20	3003	429	0386	228	4607	622	.881 6067	2 201	40		1 221 0 220 0
	30	3431	428	0159	227	5229	622	.881 3865	2 202	30		2 442 0 440 0
	40	3859	429	0 882 9931	228	5851	621	.881 1665	2 200	20		3 663 0 660 0
	50	4288	428	9704	228	6472	622	.880 9465	2 200	10		4 884 0 880 0
60	0	0.469 4716		0.882 9476		0.531 7094		1.880 7265		0	0	5 1105 0 1100 0
												6 1326 0 1320 0
												7 1547 0 1540 0
												8 1768 0 1760 0
												9 1989 0 1980 0
		Cosine	Diff.	Sine	Diff.	Cotangent	Diff.	Tangent	Diff.	"	'	Proportional Parts

62° 0'

28° 0'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
0	0	0.469 4716	428	0.882 9476	228	0.531 7094	622	1.880 7265	2 200	0	60	
	10	5144	428	9248	228	7716	622	.880 5065	2 199	50		
	20	5572	428	9021	227	8338	622	.880 2866	2 199	40		
	30	6000	428	8793	228	8960	622	.880 0667	2 198	30		
	40	6428	428	8565	228	9582	622	.879 8469	2 198	20		
	50	6856	428	8338	227	0.532 0204	622	.879 6271	2 198	10		
			428		228				2 197			
1	0	0.469 7284	428	0.882 8110	229	0.532 0826	622	1.879 4074	2 197	0	59	Sine
	10	7712	428	7882	228	1448	622	.879 1877	2 197	50		427 428
	20	8140	428	7654	227	2070	622	.878 9680	2 197	40		1 42 7 42 8
	30	8568	428	7427	228	2693	623	.878 7484	2 196	30		2 85 4 85 6
	40	8996	428	7199	228	3315	622	.878 5288	2 196	20		3 128 1 128 4
	50	9424	428	6971	228	3937	622	.878 3093	2 195	10		4 170 8 171 2
			428		228				2 195			5 213 5 214 0
2	0	0.469 9852	428	0.882 6743	228	0.532 4559	622	1.878 0898	2 195	0	58	6 256 2 256 8
	10	0 470 0280	427	6515	228	5181	623	.877 8703	2 194	50		7 298 9 299 6
	20	0707	428	6287	227	5804	632	.877 6509	2 194	40		8 341 6 342 4
	30	1135	428	6060	228	6426	622	.877 4315	2 194	30		9 384 3 385 2
	40	1563	428	5832	228	7048	622	.877 2121	2 193	20		
	50	1991	428	5604	228	7671	622	.876 9928	2 192	10		
			428		228							Cosine
3	0	0.470 2419	428	0.882 5376	228	0.532 8293	623	1.876 7736	2 193	0	57	227 228 229
	10	2847	428	5148	228	8916	622	.876 5543	2 192	50		1 22 7 22 8
	20	3275	428	4920	228	9538	622	.876 3351	2 192	40		2 45 4 45 6
	30	3703	427	4692	228	0.533 0161	623	.876 1160	2 191	30		3 68 1 68 4
	40	4130	428	4464	229	0783	622	.875 8969	2 191	20		4 90 8 91 2
	50	4558	428	4235	228	1406	623	.875 6778	2 190	10		5 113 5 114 0
			428		228							6 136 2 136 8
4	0	0.470 4986	428	0.882 4007	228	0.533 2029	622	1.875 4588	2 190	0	56	7 158 9 159 6
	10	5414	428	3779	228	2651	623	.875 2398	2 189	50		8 181 6 182 4
	20	5842	428	3551	228	3274	623	.875 0209	2 189	40		9 204 3 205 2
	30	6269	427	3323	228	3897	622	.874 8020	2 189	30		
	40	6697	428	3095	228	4519	622	.874 5831	2 188	20		
	50	7125	428	2867	229	5142	623	.874 3643	2 188	10		
			428		229							Tangent
5	0	0.470 7553	427	0.882 2638	228	0.533 5765	623	1.874 1455	2 188	0	55	622 623 624
	10	7980	428	2410	228	6388	623	.873 9267	2 187	50		1 62 2 62 3
	20	8408	428	2182	228	7011	623	.873 7080	2 187	40		2 124 4 124 6
	30	8836	427	1954	229	7634	623	.873 4893	2 186	30		3 186 6 186 9
	40	9263	428	1725	228	8257	623	.873 2707	2 186	20		4 248 8 249 2
	50	9691	428	1497	228	8880	623	.873 0521	2 185	10		5 311 0 311 5
			428		228							6 373 2 373 8
6	0	0.471 0119	427	0.882 1269	229	0.533 9503	623	1.872 8336	2 185	0	54	7 435 4 436 1
	10	0546	428	1040	228	0.534 0126	623	.872 6151	2 185	50		8 497 6 498 4
	20	0974	428	0812	228	0749	623	.872 3966	2 184	40		9 559 8 560 7
	30	1402	427	0584	229	1372	623	.872 1782	2 184	30		
	40	1829	428	0355	228	1995	623	.871 9598	2 184	20		
	50	2257	428	0127	229	2618	624	.871 7414	2 183	10		
			428		229							Cotangent
7	0	0.471 2685	427	0.881 9898	228	0.534 3242	623	1.871 5231	2 183	0	53	2200 2190
	10	3112	428	9670	229	3865	623	.871 3048	2 182	50		1 220 0 219 0
	20	3540	427	9441	228	4488	623	.871 0866	2 182	40		2 440 0 438 0
	30	3967	428	9213	229	5111	624	.870 8684	2 181	30		3 660 0 657 0
	40	4395	427	8984	228	5735	623	.870 6503	2 181	20		4 880 0 876 0
	50	4822	428	8756	229	6358	623	.870 4321	2 180	10		5 1100 0 1095 0
			428		229							6 1320 0 1314 0
8	0	0.471 5250	428	0.881 8527	229	0.534 6981	624	1.870 2141	2 181	0	52	7 1540 0 1533 0
	10	5678	427	8298	228	7605	623	.869 9960	2 180	50		8 1760 0 1752 0
	20	6105	428	8070	229	8228	624	.869 7780	2 179	40		9 1980 0 1971 0
	30	6533	428	7841	229	8852	623	.869 5601	2 179	30		
	40	6960	427	7612	228	9475	624	.869 3422	2 179	20		
	50	7388	427	7384	229	0.535 0099	624	.869 1243	2 178	10		
			427		229							2180 2170
9	0	0.471 7815	427	0.881 7155	229	0.535 0723	623	1.868 9065	2 178	0	51	1 218 0 217 0
	10	8242	428	6926	229	1346	624	.868 6887	2 178	50		2 436 0 434 0
	20	8670	427	6697	228	1970	624	.868 4709	2 177	40		3 654 0 651 0
	30	9097	428	6469	229	2594	623	.868 2532	2 177	30		4 872 0 868 0
	40	9525	427	6240	229	3217	624	.868 0355	2 176	20		5 1090 0 1085 0
	50	9952	428	6011	229	3841	624	.867 8179	2 176	10		6 1308 0 1302 0
			428		229							7 1526 0 1519 0
10	0	0.472 0380		0.881 5782		0.535 4465		1.867 6003		0	50	8 1744 0 1736 0
												9 1962 0 1953 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

61° 50'

28° 10'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
10	0	0.472 0380		0.881 5782		0.535 4465		1.867 6003		0	50	
	10	0807	427	5553	229	5089	624	.867 3827	2 176	50		
	20	1234	427	5324	229	5713	624	.867 1652	2 175	40		
	30	1662	428	5096	228	6336	623	.866 9477	2 175	30		
	40	2089	427	4867	229	6960	624	.866 7302	2 175	20		
	50	2517	428	4638	229	7584	624	.866 5128	2 174	10		
			427		229		624		2 173			
11	0	0.472 2944		0.881 4409		0.535 8208		1.866 2955		0	49	
	10	3371	427	4180	229	8832	624	.866 0782	2 173	50		Sine
	20	3798	427	3951	229	9456	624	.865 8609	2 173	40		426 427 428
	30	4226	428	3722	229	0.536 0080	624	.865 6436	2 173	30		1 42 6 42 7 42 8
	40	4653	427	3493	229	0705	625	.865 4264	2 172	20		2 85 2 85 4 85 6
	50	5080	427	3264	229	1329	624	.865 2092	2 172	10		3 127 8 128 1 128 4
			428		229		624		2 171			4 170 4 170 8 171 2
12	0	0.472 5508		0.881 3035		0.536 1953		1.864 9921		0	48	
	10	5935	427	2805	230	2577	624	.864 7750	2 171	50		5 213 0 213 5 214 0
	20	6362	427	2576	229	3201	624	.864 5580	2 170	40		6 255 6 256 2 256 8
	30	6789	427	2347	229	3826	625	.864 3410	2 170	30		7 298 2 298 9 299 6
	40	7217	428	2118	229	4450	624	.864 1240	2 170	20		8 340 8 341 6 342 4
	50	7644	427	1889	229	5074	624	.863 9071	2 169	10		9 383 4 384 3 385 2
			427		229		625		2 169			
13	0	0.472 8071		0.881 1660		0.536 5699		1.863 6902		0	47	
	10	8498	427	1430	230	6323	624	.863 4733	2 169	50		Cosine
	20	8925	427	1201	229	6948	625	.863 2565	2 168	40		228 229 230
	30	9353	427	0972	230	7572	625	.863 0397	2 168	30		1 22 8 22 9 23 0
	40	9780	427	0742	229	8197	625	.862 8230	2 167	20		2 45 6 45 8 46 0
	50	0.473 0207	427	0513	229	8821	625	.862 6063	2 167	10		3 68 4 68 7 69 0
					229				2 167			4 91 2 91 6 92 0
14	0	0.473 0634		0.881 0284		0.536 9446		1.862 3896		0	46	
	10	1061	427	0054	230	0.537 0070	624	.862 1730	2 166	50		5 114 0 114 5 115 0
	20	1488	427	0.880 9825	229	0695	625	.861 9564	2 166	40		6 136 8 137 4 138 0
	30	1915	428	9596	230	1320	625	.861 7399	2 165	30		7 159 6 160 3 161 0
	40	2343	428	9366	230	1944	624	.861 5234	2 165	20		8 182 4 183 2 184 0
	50	2770	427	9137	229	2569	625	.861 3069	2 165	10		9 205 2 206 1 207 0
			427		229				2 164			
15	0	0.473 3197		0.880 8907		0.537 3194		1.861 0905		0	45	
	10	3624	427	8678	229	3819	625	.860 8741	2 164	50		Tangent
	20	4051	427	8448	230	4443	624	.860 6578	2 163	40		624 625 626
	30	4478	427	8219	229	5068	625	.860 4415	2 163	30		1 62 4 62 5 62 6
	40	4905	427	7989	230	5693	625	.860 2252	2 163	20		2 124 8 125 0 125 2
	50	5332	427	7760	230	6318	625	.860 0090	2 162	10		3 187 2 187 5 187 8
					230				2 162			4 249 6 250 0 250 4
16	0	0.473 5759		0.880 7530		0.537 6943		1.859 7928		0	44	
	10	6186	427	7301	229	7568	625	.859 5766	2 162	50		5 312 0 312 5 313 0
	20	6613	427	7071	230	8193	625	.859 3605	2 161	40		6 374 4 375 0 375 6
	30	7040	427	6841	229	8818	625	.859 1444	2 161	30		7 436 8 437 5 438 2
	40	7467	427	6612	230	9443	625	.858 9284	2 160	20		8 499 2 500 0 500 8
	50	7894	427	6382	230	0.538 0068	626	.858 7124	2 159	10		9 561 6 562 5 563 4
					230							
17	0	0.473 8321		0.880 6152		0.538 0694		1.858 4965		0	43	
	10	8748	427	5922	230	1319	625	.858 2805	2 160	50		Cotangent
	20	9175	426	5693	230	1944	625	.858 0647	2 158	40		2180 2170
	30	9601	426	5463	230	2569	625	.857 8488	2 159	30		1 218 0 217 0
	40	0.474 0028	427	5233	230	3195	626	.857 6330	2 158	20		2 436 0 434 0
	50	0455	427	5003	229	3820	625	.857 4173	2 157	10		3 654 0 651 0
					229				2 157			4 872 0 868 0
18	0	0.474 0882		0.880 4774		0.538 4445		1.857 2015		0	42	
	10	1309	427	4544	230	5071	626	.856 9859	2 156	50		5 1090 0 1085 0
	20	1736	427	4314	230	5696	625	.856 7702	2 157	40		6 1308 0 1302 0
	30	2163	427	4084	230	6321	625	.856 5546	2 156	30		7 1526 0 1519 0
	40	2589	426	3854	230	6947	626	.856 3390	2 155	20		8 1744 0 1736 0
	50	3016	427	3624	233	7573	626	.856 1235	2 155	10		9 1962 0 1953 0
			427		230				2 155			
19	0	0.474 3443		0.880 3394		0.538 8198		1.855 9080		0	41	
	10	3870	427	3164	230	8824	626	.855 6926	2 154	50		2160 2150
	20	4297	426	2934	230	9449	625	.855 4772	2 154	40		1 216 0 215 0
	30	4723	427	2704	230	0.539 0075	626	.855 2618	2 153	30		2 432 0 430 0
	40	5150	427	2474	230	0701	626	.855 0465	2 153	20		3 648 0 645 0
	50	5577	427	2244	230	1326	625	.854 8312	2 153	10		4 864 0 860 0
					230				2 153			5 1080 0 1075 0
20	0	0.474 6004		0.880 2014		0.539 1952		1.854 6159		0	40	
												6 1296 0 1290 0
												7 1512 0 1505 0
												8 1728 0 1720 0
												9 1944 0 1935 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

61° 40'

28° 20'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff.			Proportional Parts
20	0	0.474 6004		0.880 2014		0.539 1952		1.854 6159		0	40	
	10	6430	426	1784	230	2578	626	.854 4007	2 152	50		
	20	6857	427	1554	230	3204	625	.854 1855	2 151	40		
	30	7284	427	1324	231	3829	626	.853 9704	2 151	30		
	40	7711	427	1093	230	4455	626	.853 7553	2 151	20		
	50	8137	426	0863	230	5081	626	.853 5402	2 151	10		
			427		230				2 150			
21	0	0.474 8564		0.880 0633		0.539 5707		1.853 3252		0	39	
	10	8991	427	0403	230	6333	626	.853 1102	2 150	50		
	20	9417	426	0173	230	6959	626	.852 8952	2 150	40		
	30	9844	427	0.879 9942	231	7585	626	.852 6803	2 149	30		
	40	0.475 0270	426	9712	230	8211	626	.852 4655	2 148	20		
	50	0697	427	9482	231	8837	627	.852 2506	2 149	10		
					231				2 148			
22	0	0.475 1124		0.879 9251		0.539 9464		1.852 0358		0	38	
	10	1550	426	9021	230	0.540 0090	626	.851 8211	2 147	50		
	20	1977	427	8791	230	0716	626	.851 6064	2 147	40		
	30	2403	426	8560	231	1342	626	.851 3917	2 147	30		
	40	2830	427	8330	230	1968	626	.851 1770	2 147	20		
	50	3257	427	8099	231	2595	627	.850 9624	2 146	10		
			426		230				2 145			
23	0	0.475 3683		0.879 7869		0.540 3221		1.850 7479		0	37	
	10	4110	427	7638	231	3847	626	.850 5334	2 145	50		
	20	4536	426	7408	230	4474	627	.850 3189	2 145	40		
	30	4963	427	7177	231	5100	626	.850 1044	2 145	30		
	40	5389	426	6947	230	5727	627	.849 8900	2 144	20		
	50	5816	427	6716	231	6353	626	.849 6756	2 144	10		
			426		230				2 143			
24	0	0.475 6242		0.879 6486		0.540 6980		1.849 4613		0	36	
	10	6669	427	6255	231	7606	626	.849 2470	2 143	50		
	20	7095	426	6025	230	8233	627	.849 0328	2 142	40		
	30	7521	427	5794	231	8860	627	.848 8185	2 143	30		
	40	7948	426	5563	231	9486	626	.848 6044	2 141	20		
	50	8374	426	5333	230	0.541 0113	627	.848 3902	2 142	10		
			427		231				2 141			
25	0	0.475 8801		0.879 5102		0.541 0740		1.848 1761		0	35	
	10	9227	426	4871	231	1366	626	.847 9621	2 140	50		
	20	9653	426	4640	231	1993	627	.847 7480	2 141	40		
	30	0.476 0080	427	4410	230	2620	627	.847 5341	2 139	30		
	40	0506	426	4179	231	3247	627	.847 3201	2 140	20		
	50	0933	427	3948	231	3874	627	.847 1062	2 139	10		
			426		231				2 139			
26	0	0.476 1359		0.879 3717		0.541 4501		1.846 8923		0	34	
	10	1785	426	3486	231	5128	627	.846 6785	2 138	50		
	20	2212	427	3255	231	5755	627	.846 4647	2 138	40		
	30	2638	426	3025	230	6382	627	.846 2509	2 138	30		
	40	3064	426	2794	231	7009	627	.846 0372	2 137	20		
	50	3490	427	2563	231	7636	627	.845 8235	2 137	10		
			426		231				2 136			
27	0	0.476 3917		0.879 2332		0.541 8263		1.845 6099		0	33	
	10	4343	426	2101	231	8890	627	.845 3963	2 136	50		
	20	4769	426	1870	231	9517	627	.845 1827	2 136	40		
	30	5195	426	1639	231	0.542 0145	628	.844 9692	2 135	30		
	40	5622	426	1408	231	0772	627	.844 7557	2 135	20		
	50	6048	426	1177	231	1399	627	.844 5423	2 134	10		
			426		231				2 134			
28	0	0.476 6474		0.879 0946		0.542 2027		1.844 3289		0	32	
	10	6900	426	0715	231	2654	627	.844 1155	2 134	50		
	20	7326	427	0483	232	3281	627	.843 9021	2 134	40		
	30	7753	426	0252	231	3909	628	.843 6889	2 132	30		
	40	8179	426	0021	231	4536	627	.843 4756	2 133	20		
	50	8605	426	0.878 9790	231	5164	628	.843 2624	2 132	10		
			426		231				2 132			
29	0	0.476 9031		0.878 9559		0.542 5791		1.843 0492		0	31	
	10	9457	426	9328	231	6419	628	.842 8360	2 132	50		
	20	9883	426	9096	232	7046	627	.842 6229	2 131	40		
	30	0.477 0309	426	8865	231	7674	628	.842 4099	2 130	30		
	40	0735	426	8634	232	8302	628	.842 1968	2 131	20		
	50	1162	427	8402	232	8929	627	.841 9838	2 130	10		
			426		231				2 129			
30	0	0.477 1588		0.878 8171		0.542 9557		1.841 7709		0	30	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

61° 30'

28° 30'

	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
30	0	0.477 1588		0.878 8171		0.542 9557		1.841 7709		0	30	
	10	2014	426	7940	231	0.543 0185	628	.841 5580	2 129	50		Sine
	20	2440	426	7708	232	0813	628	.841 3451	2 129	40		426 426
	30	2866	426	7477	231	1440	627	.841 1322	2 129	30		1 42 5 42 6
	40	3292	426	7246	231	2068	628	.840 9194	2 128	20		2 85 0 85 2
	50	3718	426	7014	232	2696	628	.840 7067	2 127	10		3 127 5 127 8
			426		231		628		2 127			4 170 0 170 4
31	0	0.477 4144		0.878 6783		0.543 3324		1.840 4940		0	29	
	10	4570	426	6551	232	3952	628	.840 2813	2 127	50		5 212 5 213 0
	20	4996	426	6320	231	4580	628	.840 0686	2 127	40		6 255 0 255 6
	30	5422	426	6088	232	5208	628	.839 8560	2 126	30		7 297 5 298 2
	40	5848	426	5857	231	5836	628	.839 6434	2 126	20		8 340 0 340 8
	50	6274	426	5625	232	6464	628	.839 4309	2 125	10		9 382 5 383 4
			426		231		628		2 125			
32	0	0.477 6700		0.878 5394		0.543 7092		1.839 2184		0	28	
	10	7125	425	5162	232	7720	628	.839 0059	2 125	50		Cosine
	20	7551	426	4930	232	8349	629	.838 7935	2 124	40		231 232 233
	30	7977	426	4699	231	8977	628	.838 5811	2 124	30		1 23 1 23 2 23 3
	40	8403	426	4467	232	9605	628	.838 3688	2 123	20		2 46 2 46 1 46 6
	50	8829	426	4235	232	0.544 0233	628	.838 1565	2 123	10		3 69 3 69 6 69 9
			426		231		629		2 123			4 92 4 92 8 93 2
33	0	0.477 9255		0.878 4004		0.544 0862		1.837 9442		0	27	
	10	9681	426	3772	232	1490	628	.837 7320	2 122	50		5 115 5 116 0 116 5
	20	0.478 0107	425	3540	232	2118	628	.837 5198	2 122	40		6 138 6 139 2 139 8
	30	0532	426	3309	231	2747	629	.837 3076	2 122	30		7 161 7 162 4 163 1
	40	0958	426	3077	232	3375	628	.837 0955	2 121	20		8 184 8 185 6 186 4
	50	1384	426	2845	232	4004	629	.836 8834	2 121	10		9 207 9 208 8 209 7
			426		231		628		2 121			
34	0	0.478 1810		0.878 2613		0.544 4632		1.836 6713		0	26	
	10	2236	426	2381	232	5261	629	.836 4593	2 120	50		Tangent
	20	2661	425	2149	232	5889	628	.836 2474	2 119	40		627 628
	30	3087	426	1918	231	6518	629	.836 0354	2 120	30		1 62 7 62 8
	40	3513	426	1686	232	7147	629	.835 8235	2 119	20		2 125 4 125 6
	50	3939	426	1454	232	7775	628	.835 6117	2 118	10		3 188 1 188 4
			425		231		629		2 118			4 250 8 251 2
35	0	0.478 4364		0.878 1222		0.544 8404		1.835 3999		0	25	
	10	4790	426	0990	232	9033	629	.835 1881	2 118	50		5 313 5 314 0
	20	5216	426	0758	232	9662	629	.834 9763	2 118	40		6 376 2 376 8
	30	5642	425	0526	232	0.545 0290	628	.834 7646	2 117	30		7 438 9 439 6
	40	6067	426	0294	232	0919	629	.834 5530	2 116	20		8 501 6 502 4
	50	6493	426	0062	232	1548	629	.834 3413	2 116	10		9 564 3 565 2
			426		231		629		2 116			629 630
36	0	0.478 6919		0.877 9830		0.545 2177		1.834 1297		0	24	
	10	7344	425	9598	232	2806	629	.833 9182	2 115	50		1 62 9 63 0
	20	7770	426	9366	232	3435	629	.833 7067	2 115	40		2 125 8 126 0
	30	8196	426	9133	233	4064	629	.833 4952	2 115	30		3 188 7 189 0
	40	8621	426	8901	232	4693	629	.833 2837	2 115	20		4 251 6 252 0
	50	9047	425	8669	232	5322	629	.833 0723	2 114	10		5 314 5 315 0
			426		231		629		2 114			6 377 4 378 0
37	0	0.478 9472		0.877 8437		0.545 5961		1.832 8610		0	23	
	10	9898	425	8205	232	6580	629	.832 6496	2 114	50		7 440 3 441 0
	20	0.479 0323	426	7972	232	7210	630	.832 4384	2 113	40		8 503 2 504 0
	30	0749	426	7740	232	7839	629	.832 2271	2 112	30		9 566 1 567 0
	40	1175	426	7508	232	8468	629	.832 0159	2 112	20		
	50	1600	425	7276	233	9097	630	.831 8047	2 111	10		Cotangent
			426		232		630		2 111			2130 2120
38	0	0.479 2026		0.877 7043		0.545 9727		1.831 5936		0	22	
	10	2451	425	6811	232	0.546 0356	629	.831 3825	2 111	50		1 213 0 212 0
	20	2877	426	6579	232	0985	629	.831 1714	2 111	40		2 426 0 424 0
	30	3302	426	6346	233	1615	630	.830 9604	2 110	30		3 639 0 636 0
	40	3728	425	6114	232	2244	629	.830 7494	2 110	20		4 852 0 848 0
	50	4153	426	5881	233	2874	630	.830 5384	2 109	10		5 1065 0 1060 0
			426		232		629		2 109			6 1278 0 1272 0
39	0	0.479 4579		0.877 5649		0.546 3503		1.830 3275		0	21	
	10	5004	425	5417	232	4133	630	.830 1166	2 109	50		7 1491 0 1484 0
	20	5429	425	5184	233	4762	629	.829 9058	2 108	40		8 1704 0 1696 0
	30	5855	426	4952	232	5392	630	.829 6950	2 108	30		9 1917 0 1908 0
	40	6280	426	4719	233	6022	629	.829 4842	2 107	20		2110 2100
	50	6706	425	4487	233	6651	630	.829 2735	2 107	10		1 211 0 210 0
			426		232		630		2 107			2 422 0 420 0
40	0	0.479 7131		0.877 4254		0.546 7281		1.829 0628		0	20	
												3 633 0 630 0
												4 844 0 840 0
												5 1055 0 1050 0
												6 1266 0 1260 0
												7 1477 0 1470 0
												8 1688 0 1680 0
												9 1899 0 1890 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	"	Proportional Parts

61° 20'

28° 40'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff.			Proportional Parts
40	0	0.479 7131		0.877 4264		0.546 7281		1.829 0628		0	20	
	10	7557	426	4021	233	7911	630	.828 8521	2 107	50		Sine
	20	7982	425	3789	232	8540	629	.828 6415	2 106	40		424 425 426
	30	8407	425	3556	233	9170	630	.828 4309	2 106	30		1 42 4 42 5 42 6
	40	8833	426	3324	232	9800	630	.828 2204	2 105	20		2 81 8 85 0 85 2
	50	9258	425	3091	233	0.547 0430	630	.828 0099	2 105	10		3 127 2 127 5 127 8
41	0	0 479 9683		0.877 2858		0.547 1060		1.827 7994		0	19	
	10	0.480 0109	426	2625	233	1690	630	.827 5890	2 104	50		4 169 6 170 0 170 4
	20	0534	425	2393	232	2320	630	.827 3786	2 104	40		5 212 0 212 5 213 0
	30	0959	425	2160	233	2950	630	.827 1682	2 104	30		6 254 4 255 0 255 6
	40	1384	426	1927	233	3580	630	.826 9579	2 103	20		7 296 8 297 5 298 2
	50	1810	425	1694	232	4210	630	.826 7476	2 103	10		8 339 2 340 0 340 8
42	0	0 480 2235		0.877 1462		0.547 4840		1.826 5374		0	18	
	10	2660	425	1229	233	5470	630	.826 3272	2 102	50		Cosine
	20	3085	425	0996	233	6100	630	.826 1170	2 102	40		232 233 234
	30	3511	425	0763	233	6731	631	.825 9069	2 101	30		1 23 2 23 3 23 4
	40	3936	425	0530	233	7361	630	.825 6968	2 101	20		2 46 4 46 6 46 8
	50	4361	425	0297	233	7991	630	.825 4867	2 101	10		3 69 6 69 9 70 2
43	0	0 480 4786		0 877 0064		0.547 8621		1.825 2767		0	17	
	10	5211	425	0 876 9831	233	9252	631	.825 0667	2 100	50		1 92 8 93 2 93 6
	20	5637	426	9598	233	9882	630	.824 8567	2 100	40		5 116 0 116 5 117 0
	30	6062	425	9365	233	0 548 0513	631	.824 6468	2 099	30		6 139 2 139 8 140 4
	40	6487	425	9132	233	1143	630	.824 4370	2 099	20		7 162 4 163 1 163 8
	50	6912	425	8899	233	1774	631	.824 2271	2 099	10		8 185 6 186 4 187 2
44	0	0.480 7337		0 876 8666		0 548 2404		1.824 0173		0	16	
	10	7762	425	8433	233	3035	631	.823 8076	2 097	50		Tangent
	20	8187	425	8200	233	3665	630	.823 5978	2 098	40		629 630
	30	8612	425	7967	233	4296	631	.823 3882	2 098	30		1 62 9 63 0
	40	9038	426	7734	233	4926	630	.823 1785	2 097	20		2 125 8 126 0
	50	9463	425	7501	233	5557	631	.822 9689	2 097	10		3 188 7 189 0
45	0	0.480 9888		0 876 7268		0.548 6188		1.822 7593		0	15	
	10	0.481 0313	425	7034	234	6819	631	.822 5498	2 096	50		4 251 6 252 0
	20	0738	425	6801	233	7449	630	.822 3403	2 095	40		5 311 5 315 0
	30	1163	425	6568	233	8080	631	.822 1308	2 095	30		6 377 4 378 0
	40	1588	425	6335	234	8711	631	.821 9214	2 094	20		7 440 3 441 0
	50	2013	425	6101	233	9342	631	.821 7120	2 094	10		8 503 2 504 0
46	0	0.481 2438		0.876 5868		0.548 9973		1.821 5026		0	14	
	10	2863	425	5635	233	0.549 0604	631	.821 2933	2 093	50		5 566 1 567 0
	20	3288	425	5401	234	1235	631	.821 0840	2 093	40		631 632
	30	3713	425	5168	233	1866	631	.820 8748	2 092	30		1 126 2 126 4
	40	4138	425	4935	234	2497	631	.820 6656	2 092	20		2 189 3 189 6
	50	4563	424	4701	233	3128	631	.820 4564	2 091	10		3 252 4 252 8
47	0	0.481 4987		0.876 4468		0.549 3769		1.820 2473		0	13	
	10	5412	425	4234	234	4390	631	.820 0382	2 091	50		Cotangent
	20	5837	425	4001	234	5021	632	.819 8291	2 091	40		2110 2100
	30	6262	425	3767	233	5653	631	.819 6201	2 090	30		1 211 0 210 0
	40	6687	425	3534	234	6284	631	.819 4111	2 090	20		2 422 0 420 0
	50	7112	425	3300	233	6915	632	.819 2022	2 089	10		3 633 0 630 0
48	0	0.481 7637		0 876 3067		0.549 7547		1.818 9932		0	12	
	10	7962	425	2833	234	8178	631	.818 7844	2 088	50		4 844 0 840 0
	20	8386	424	2600	233	8809	631	.818 5755	2 088	40		5 1055 0 1050 0
	30	8811	425	2366	234	9441	632	.818 3667	2 088	30		6 1266 0 1260 0
	40	9236	425	2132	234	0.550 0072	631	.818 1580	2 087	20		7 1477 0 1470 0
	50	9661	425	1899	233	0704	632	.817 9492	2 087	10		8 1688 0 1680 0
49	0	0.482 0086		0.876 1665		0.550 1335		1.817 7405		0	11	
	10	0510	424	1431	234	1967	632	.817 5319	2 086	50		9 1899 0 1890 0
	20	0935	425	1198	233	2598	631	.817 3233	2 086	40		2090 2080
	30	1360	425	0964	234	3230	632	.817 1147	2 086	30		1 209 0 208 0
	40	1785	424	0730	234	3862	632	.816 9062	2 085	20		2 418 0 416 0
	50	2209	425	0496	233	4493	631	.816 6976	2 084	10		3 627 0 624 0
50	0	0.482 2634		0.876 0263		0.550 5125		1.816 4892		0	10	
												4 836 0 832 0
												5 1045 0 1040 0
												6 1254 0 1248 0
												7 1463 0 1456 0
												8 1672 0 1664 0
												9 1881 0 1872 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff.	Tangent	Diff	"	'	Proportional Parts

61° 10'

28° 50'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
50	0	0.482 2834		0.876 0263		0.550 5125		1.816 4892		0	10	
	10	3059	425	0029	234	5757	632	.816 2807	2 085	50		Sine
	20	3483	424	0.875 9795	234	6389	631	.816 0723	2 084	40		424 425
	30	3908	425	9561	234	7020	632	.815 8640	2 083	30		1 42 4 42 5
	40	4333	424	9327	234	7652	632	.815 6557	2 083	20		2 84 8 85 0
	50	4757	425	9093	234	8284	632	.815 4474	2 083	10		3 127 2 127 5
												4 169 6 170 0
51	0	0.482 5182		0.875 8859		0.550 8916		1.815 2391		0	9	
	10	5607	425	8625	234	9548	632	.815 0309	2 082	50		5 212 0 212 5
	20	6031	424	8391	234	0.551 0180	632	.814 8227	2 082	40		6 254 4 255 0
	30	6456	425	8157	234	0812	632	.814 6146	2 081	30		7 296 8 297 5
	40	6881	424	7923	234	1444	632	.814 4065	2 081	20		8 339 2 340 0
	50	7305	425	7689	234	2076	632	.814 1984	2 080	10		9 381 6 382 5
52	0	0.482 7730		0.875 7455		0.551 2708		1.813 9904		0	8	
	10	8154	424	7221	234	3341	633	.813 7824	2 080	50		Cosine
	20	8579	425	6987	234	3973	632	.813 5744	2 080	40		234 235
	30	9003	424	6753	234	4605	632	.813 3665	2 079	30		1 23 4 23 5
	40	9428	425	6519	234	5237	633	.813 1586	2 078	20		2 46 8 47 0
	50	9852	425	6285	234	5870	632	.812 9508	2 078	10		3 70 2 70 5
												4 93 6 94 0
53	0	0.483 0277		0.875 6051		0.551 6502		1.812 7430		0	7	
	10	0702	425	5817	234	7134	632	.812 5352	2 078	50		5 117 0 117 5
	20	1126	424	5582	235	7767	633	.812 3275	2 077	40		6 140 4 141 0
	30	1550	425	5348	234	8399	632	.812 1198	2 077	30		7 163 8 164 5
	40	1975	424	5114	234	9032	633	.811 9121	2 077	20		8 187 2 188 0
	50	2399	425	4880	235	9664	632	.811 7045	2 076	10		9 210 6 211 5
54	0	0.483 2824		0.875 4645		0.552 0297		1.811 4969		0	6	
	10	3248	424	4411	234	0929	632	.811 2893	2 076	50		Tangent
	20	3673	425	4177	234	1562	633	.811 0818	2 075	40		631 632
	30	4097	424	3942	235	2194	632	.810 8743	2 075	30		1 63 1 63 2
	40	4521	425	3708	234	2827	633	.810 6669	2 074	20		2 126 2 126 4
	50	4946	424	3474	235	3460	633	.810 4595	2 074	10		3 180 3 180 6
												4 252 4 252 8
55	0	0.483 5370		0.875 3239		0.552 4093		1.810 2521		0	5	
	10	5795	425	3005	234	4725	632	.810 0447	2 074	50		5 315 5 316 0
	20	6219	424	2770	235	5358	633	.809 8374	2 073	40		6 378 6 379 2
	30	6643	425	2536	234	5991	633	.809 6302	2 072	30		7 441 7 442 4
	40	7068	424	2301	234	6624	633	.809 4230	2 072	20		8 504 8 505 6
	50	7492	425	2067	235	7257	633	.809 2158	2 072	10		9 567 9 568 8
56	0	0.483 7916		0.875 1832		0.552 7890		1.809 0086		0	4	
	10	8341	425	1598	234	8523	633	.808 8015	2 071	50		633 634
	20	8765	424	1363	235	9156	633	.808 5944	2 071	40		1 63 3 63 4
	30	9189	425	1128	234	9789	633	.808 3874	2 070	30		2 126 6 126 8
	40	9613	424	0894	235	0.553 0422	633	.808 1804	2 070	20		3 180 9 180 2
	50	0.484 0038	424	0659	234	1055	633	.807 9734	2 070	10		4 253 2 253 6
												5 316 5 317 0
57	0	0.484 0462		0.875 0425		0.553 1688		1.807 7664		0	3	
	10	0886	424	0190	235	2321	633	.807 5595	2 069	50		5 379 8 380 4
	20	1310	425	0.874 9955	235	2954	634	.807 3527	2 069	40		6 443 1 443 8
	30	1735	424	9720	234	3588	633	.807 1458	2 069	30		7 506 4 507 2
	40	2159	425	9486	235	4221	633	.806 9391	2 068	20		8 569 7 570 6
	50	2583	424	9251	235	4854	634	.806 7323	2 067	10		9 569 7 570 6
58	0	0.484 3007		0.874 9016		0.553 5488		1.806 5256		0	2	
	10	3431	424	8781	235	6121	633	.806 3189	2 067	50		Cotangent
	20	3855	425	8546	234	6754	633	.806 1122	2 067	40		2090 2080
	30	4279	424	8312	235	7388	634	.805 9056	2 066	30		1 209 0 208 0
	40	4704	425	8077	235	8021	633	.805 6991	2 065	20		2 418 0 416 0
	50	5128	424	7842	235	8655	634	.805 4925	2 065	10		3 627 0 624 0
												4 836 0 832 0
59	0	0.484 5552		0.874 7607		0.553 9288		1.805 2860		0	1	
	10	5976	424	7372	235	9922	634	.805 0795	2 065	50		5 1045 0 1040 0
	20	6400	425	7137	235	0.554 0556	634	.804 8731	2 064	40		6 1254 0 1248 0
	30	6824	424	6902	235	1189	633	.804 6667	2 064	30		7 1403 0 1456 0
	40	7248	425	6667	235	1823	634	.804 4604	2 063	20		8 1672 0 1684 0
	50	7672	424	6432	235	2457	634	.804 2540	2 062	10		9 1851 0 1872 0
60	0	0.484 8096		0.874 6197		0.554 3091		1.804 0478		0	0	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

61° 0'

29° 0'

'	"	Sine	Diff.	Cosine	Diff.	Tangent	Diff.	Cotangent	Diff.			Proportional Parts
0	0	0.484 8096		0.874 6197		0.554 3091		1.804 0478		0	60	
	10	8520	424	5962	235	3724	633	.803 8415	2 063	50		Sine
	20	8944	424	5727	235	4358	634	.803 6353	2 062	40		423 424
	30	9368	424	5492	235	4992	634	.803 4291	2 062	30		1 42 3 42 4
	40	9792	424	5257	235	5626	634	.803 2230	2 061	20		2 84 6 84 8
	50	0.485 0216	424	5022	236	6260	634	.803 0169	2 061	10		3 126 9 127 2
1	0	0.485 0640	424	0.874 4786	235	0.554 6894	634	1.802 8108	2 060	0	59	4 169 2 169 6
	10	1064	424	4551	235	7528	634	.802 6048	2 060	50		5 211 5 212 0
	20	1488	424	4316	235	8162	634	.802 3988	2 060	40		6 253 8 254 4
	30	1912	424	4081	235	8796	634	.802 1928	2 060	30		7 296 1 296 8
	40	2336	424	3846	235	9430	634	.801 9869	2 059	20		8 338 4 339 2
	50	2760	424	3610	236	0 555 0064	634	.801 7810	2 059	10		9 380 7 381 6
2	0	0.485 3184	424	0.874 3375	235	0.555 0698	634	1.801 5751	2 058	0	58	Cosine
	10	3608	423	3140	236	1332	635	.801 3693	2 058	50		235 236 237
	20	4031	424	2904	235	1967	634	.801 1635	2 057	40		1 23 5 23 6 23 7
	30	4455	424	2669	235	2601	634	.800 9578	2 057	30		2 47 0 47 2 47 4
	40	4879	424	2434	235	3235	634	.800 7521	2 057	20		3 70 5 70 8 71 1
	50	5303	424	2198	236	3870	634	.800 5464	2 057	10		4 94 0 94 4 94 8
3	0	0.485 5727	424	0.874 1963	235	0.555 4504	634	1.800 3408	2 056	0	57	5 117 5 118 0 118 5
	10	6151	423	1728	236	5138	635	.800 1352	2 056	50		6 141 0 141 6 142 2
	20	6574	423	1492	235	5773	635	.799 9296	2 056	40		7 164 5 165 2 165 9
	30	6998	424	1257	235	6407	634	.799 7241	2 055	30		8 188 0 188 8 189 6
	40	7422	424	1021	236	7042	635	.799 5186	2 055	20		9 211 5 212 4 213 3
	50	7846	424	0786	236	7676	635	.799 3131	2 055	10		
4	0	0.485 8270	423	0.874 0550	235	0.555 8311	635	1.799 1077	2 054	0	56	Tangent
	10	8693	424	0315	236	8946	634	.798 9023	2 054	50		633 634
	20	9117	424	0079	236	9580	634	.798 6969	2 054	40		1 63 3 63 4
	30	9541	424	0.873 9843	235	0.556 0215	635	.798 4916	2 053	30		2 126 6 126 8
	40	9965	423	9608	236	0850	635	.798 2863	2 053	20		3 189 9 190 2
	50	0.486 0388	424	9372	235	1484	635	.798 0811	2 052	10		4 253 2 253 6
5	0	0.486 0812	424	0.873 9137	236	0.556 2119	635	1.797 8759	2 052	0	55	5 316 5 317 0
	10	1236	423	8901	236	2754	635	.797 6707	2 052	50		6 379 8 380 4
	20	1659	423	8665	236	3389	635	.797 4656	2 051	40		7 443 1 443 8
	30	2083	424	8429	235	4024	635	.797 2605	2 051	30		8 506 4 507 2
	40	2507	423	8194	236	4659	635	.797 0554	2 050	20		9 569 7 570 6
	50	2930	424	7958	236	5294	635	.796 8504	2 050	10		635 636
6	0	0.486 3354	423	0.873 7722	236	0.556 5929	635	1.796 6454	2 050	0	54	1 63 5 63 6
	10	3777	424	7486	235	6564	635	.796 4404	2 049	50		2 127 0 127 2
	20	4201	424	7251	236	7199	635	.796 2355	2 049	40		3 190 5 190 8
	30	4625	423	7015	236	7834	635	.796 0306	2 049	30		4 254 0 254 4
	40	5048	424	6779	236	8469	635	.795 8258	2 048	20		5 317 5 318 0
	50	5472	423	6543	236	9104	635	.795 6210	2 048	10		6 381 0 381 6
7	0	0.486 5895	424	0.873 6307	236	0.556 9739	635	1.795 4162	2 048	0	53	Cotangent
	10	6319	423	6071	236	0.557 0374	636	.795 2114	2 047	50		2070 2060
	20	6742	424	5835	236	1010	635	.795 0067	2 046	40		1 207 0 206 0
	30	7166	424	5599	236	1645	635	.794 8021	2 046	30		2 414 0 412 0
	40	7589	423	5363	236	2280	636	.794 5974	2 046	20		3 621 0 618 0
	50	8013	423	5127	236	2916	635	.794 3928	2 045	10		4 828 0 824 0
8	0	0.486 8436	424	0.873 4891	236	0.557 3561	636	1.794 1883	2 045	0	52	5 1035 0 1030 0
	10	8860	423	4655	236	4187	635	.793 9837	2 045	50		6 1242 0 1236 0
	20	9283	424	4419	236	4822	636	.793 7792	2 044	40		7 1449 0 1442 0
	30	9707	423	4183	236	5458	636	.793 5748	2 044	30		8 1656 0 1648 0
	40	0.487 0130	424	3947	236	6093	635	.793 3703	2 043	20		9 1863 0 1854 0
	50	0554	423	3711	236	6729	635	.793 1660	2 044	10		2050 2040
9	0	0.487 0977	423	0.873 3475	236	0.557 7364	636	1.792 9616	2 043	0	51	1 205 0 204 0
	10	1400	424	3239	237	8000	636	.792 7573	2 043	50		2 410 0 408 0
	20	1824	423	3002	236	8636	635	.792 5530	2 042	40		3 615 0 612 0
	30	2247	424	2766	236	9271	636	.792 3488	2 043	30		4 820 0 816 0
	40	2671	423	2530	236	9907	636	.792 1445	2 043	20		5 1025 0 1020 0
	50	3094	423	2294	236	0.558 0543	636	.791 9404	2 042	10		6 1230 0 1224 0
10	0	0.487 3517		0.873 2058		0.558 1179		1.791 7362		0	50	7 1435 0 1428 0
												8 1640 0 1632 0
												9 1845 0 1836 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

60° 50'

29° 10'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
10	0	0.487 3517		0.873 2058		0.558 1179		1.791 7362		0	50	
	10	3941	424	1821	237	1814	635	791 5321	2 041	50		Sine
	20	4364	423	1585	236	2450	636	.791 3281	2 040	40		422 423 424
	30	4787	423	1349	236	3086	636	.791 1240	2 041	30		1 42 2 42 3 42 4
	40	5211	424	1112	237	3722	636	.790 9200	2 040	20		2 81 4 84 6 84 8
	50	5634	423	0876	236	4358	636	.790 7161	2 039	10		3 126 6 126 9 127 2
			423		236		636		2 040			4 168 8 169 2 169 6
11	0	0 487 6057		0.873 0640		0.558 4994		1.790 5121		0	49	
	10	6480	423	0403	237	5630	636	.790 3082	2 039	50		5 211 0 211 5 212 0
	20	6904	424	0167	236	6266	636	.790 1044	2 038	40		6 253 2 253 8 254 4
	30	7327	423	0.872 9930	237	6903	637	.789 9006	2 038	30		7 295 4 296 1 296 8
	40	7750	423	9694	237	7539	636	.789 6968	2 038	20		8 337 6 338 4 339 2
	50	8173	424	9457	236	8175	636	.789 4930	2 037	10		9 379 8 380 7 381 6
			424		236		636					
12	0	0.487 8697		0.872 9221		0.558 8811		1 789 2893		0	48	
	10	9020	423	8984	237	9447	636	.789 0856	2 037	50		Cosine
	20	9443	423	8748	236	10084	637	.788 8820	2 036	40		236 237 238
	30	9866	423	8511	236	10720	636	.788 6784	2 036	30		1 23 6 23 7 23 8
	40	0 488 0289	423	8275	236	11356	636	.788 4748	2 036	20		2 47 2 47 4 47 6
	50	0712	424	8038	237	11993	637	.788 2713	2 035	10		3 70 8 71 1 71 4
			424		237		636		2 035			4 94 4 94 8 95 2
13	0	0 488 1136		0 872 7801		0.559 2629		1 788 0678		0	47	
	10	1559	423	7565	236	3266	637	.787 8643	2 035	50		5 118 0 118 5 119 0
	20	1982	423	7328	237	3902	636	.787 6609	2 034	40		6 141 6 142 2 112 8
	30	2405	423	7091	236	4539	637	.787 4575	2 034	30		7 165 2 165 9 166 6
	40	2828	423	6855	236	5175	636	.787 2541	2 034	20		8 188 8 189 6 190 4
	50	3251	423	6618	237	5812	637	.787 0508	2 033	10		9 212 4 213 3 214 2
			423		237		637		2 033			
14	0	0.488 3674		0.872 6381		0.559 6449		1.786 8475		0	46	
	10	4097	423	6144	237	7085	636	.786 6442	2 033	50		Tangent
	20	4520	423	5907	237	7722	637	.786 4410	2 032	40		635 636
	30	4943	423	5671	236	8359	637	.786 2378	2 032	30		1 63 5 63 6
	40	5366	423	5434	237	8995	636	.786 0347	2 031	20		2 127 0 127 2
	50	5789	423	5197	237	9632	637	.785 8316	2 031	10		3 190 5 190 8
			423		237		636		2 031			4 254 0 254 4
15	0	0 488 6212		0.872 4960		0.560 0269		1.785 6285		0	45	
	10	6635	423	4723	237	0906	637	.785 4254	2 031	50		5 317 5 318 0
	20	7058	423	4486	237	1543	637	.785 2224	2 030	40		6 381 0 381 6
	30	7481	423	4249	237	2180	637	.785 0195	2 029	30		7 444 5 445 2
	40	7904	423	4012	237	2817	637	.784 8165	2 029	20		8 508 0 508 8
	50	8327	423	3775	237	3454	637	.784 6136	2 029	10		9 571 5 572 4
			423		237		637					
16	0	0.488 8750		0.872 3538		0.560 4091		1 784 4107		0	44	
	10	9173	423	3301	237	4728	637	.784 2079	2 028	50		637 638
	20	9596	423	3064	237	5365	637	.784 0051	2 028	40		1 63 7 63 8
	30	0 489 0019	423	2827	237	6002	637	.783 8023	2 028	30		2 127 4 127 6
	40	0442	423	2590	237	6639	637	.783 5996	2 027	20		3 191 1 191 4
	50	0865	423	2353	237	7277	638	.783 3969	2 027	10		4 254 8 255 2
			423		237		637		2 026			5 318 5 319 0
17	0	0 489 1288		0.872 2116		0.560 7914		1.783 1943		0	43	
	10	1710	423	1879	237	8551	637	.782 9916	2 027	50		6 382 2 382 8
	20	2133	423	1642	238	9189	637	.782 7890	2 026	40		7 445 9 446 6
	30	2556	423	1404	238	9826	637	.782 5865	2 025	30		8 509 6 510 4
	40	2979	423	1167	237	0.561 0463	638	.782 3840	2 025	20		9 573 3 574 2
	50	3402	423	0930	237	1101	637	.782 1815	2 025	10		
			423		237		637					
18	0	0.489 3825		0.872 0693		0.561 1738		1.781 9790		0	42	
	10	4247	422	0455	238	2376	638	.781 7766	2 024	50		Cotangent
	20	4670	423	0218	237	3013	637	.781 5742	2 024	40		2040 2030
	30	5093	423	0.871 9981	237	3651	638	.781 3719	2 023	30		1 204 0 203 0
	40	5516	422	9744	237	4289	638	.781 1696	2 023	20		2 408 0 406 0
	50	5938	423	9506	237	4926	638	.780 9673	2 022	10		3 612 0 609 0
			423		237		638					4 816 0 812 0
19	0	0.489 6361		0.871 9269		0.561 5564		1.780 7651		0	41	
	10	6784	423	9031	238	6202	638	.780 5629	2 022	50		5 1020 0 1015 0
	20	7206	422	8794	237	6839	637	.780 3607	2 022	40		6 1224 0 1218 0
	30	7629	423	8557	237	7477	638	.780 1586	2 021	30		7 1428 0 1421 0
	40	8052	423	8319	238	8115	638	.779 9565	2 021	20		8 1632 0 1624 0
	50	8475	422	8082	237	8753	638	.779 7544	2 020	10		9 1836 0 1827 0
			422		238		638					
20	0	0.489 8897		0.871 7844		0.561 9391		1.779 5524		0	40	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

60° 40'

29° 20'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
20	0	0.489 8897		0.871 7844		0.561 9391		1.779 5524		0	40	
	10	9320	423	7607	237	0.562 0029	638	.779 3504	2 020	50		
	20	9742	422	7369	238	0667	638	.779 1484	2 020	40		
	30	0.490 0165	423	7132	237	1305	638	.778 9465	2 019	30		
	40	0588	423	6894	238	1943	638	.778 7446	2 019	20		
	50	1010	423	6656	237	2581	638	.778 5428	2 018	10		
21	0	0.490 1433		0.871 6419		0 562 3219		1.778 3409		0	39	
	10	1855	422	6181	238	3857	638	.778 1391	2 018	50		
	20	2278	423	5943	238	4495	638	.777 9374	2 017	40		
	30	2701	423	5706	237	5133	638	.777 7357	2 017	30		
	40	3123	422	5468	238	5771	638	.777 5340	2 017	20		
	50	3546	422	5230	237	6410	638	.777 3323	2 016	10		
22	0	0.490 3968		0.871 4993		0.562 7048		1.777 1307		0	38	
	10	4391	423	4755	238	7686	638	.776 9292	2 015	50		
	20	4813	422	4517	238	8325	639	.776 7276	2 016	40		
	30	5236	423	4279	238	8963	638	.776 5261	2 015	30		
	40	5658	422	4041	238	9602	639	.776 3246	2 015	20		
	50	6081	423	3804	237	0.563 0240	638	.776 1232	2 014	10		
23	0	0.490 6503		0.871 3566		0 563 0879		1.775 9218		0	37	
	10	6926	423	3328	238	1517	638	.775 7204	2 014	50		
	20	7348	422	3090	238	2156	639	.775 5191	2 013	40		
	30	7770	423	2852	238	2794	638	.775 3178	2 013	30		
	40	8193	423	2614	238	3433	639	.775 1165	2 013	20		
	50	8615	422	2376	238	4072	639	.774 9153	2 012	10		
24	0	0.490 9038		0.871 2138		0.563 4710		1.774 7141		0	36	
	10	9460	422	1900	238	5349	639	.774 5129	2 012	50		
	20	9882	422	1662	238	5988	639	.774 3118	2 011	40		
	30	0.491 0305	423	1424	238	6627	639	.774 1107	2 011	30		
	40	0727	422	1186	238	7266	639	.773 9097	2 010	20		
	50	1149	423	0948	238	7905	639	.773 7086	2 011	10		
25	0	0.491 1572		0.871 0710		0.563 8543		1.773 5076		0	35	
	10	1994	422	0472	238	9182	639	.773 3067	2 009	50		
	20	2416	422	0233	239	9821	639	.773 1058	2 009	40		
	30	2838	423	0 870 9995	238	0.564 0461	640	.772 9049	2 009	30		
	40	3261	422	9757	238	1100	639	.772 7040	2 009	20		
	50	3683	422	9519	238	1739	639	.772 5032	2 008	10		
26	0	0.491 4105		0.870 9281		0.564 2378		1.772 3024		0	34	
	10	4527	422	9042	239	3017	639	.772 1017	2 007	50		
	20	4950	423	8804	238	3656	639	.771 9010	2 007	40		
	30	5372	422	8566	238	4295	639	.771 7003	2 007	30		
	40	5794	422	8328	239	4935	640	.771 4997	2 006	20		
	50	6216	422	8089	238	5574	639	.771 2991	2 006	10		
27	0	0.491 6638		0.870 7851		0.564 6213		1.771 0985		0	33	
	10	7061	423	7612	239	6853	640	.770 8979	2 006	50		
	20	7483	422	7374	238	7492	639	.770 6974	2 005	40		
	30	7905	422	7136	238	8132	640	.770 4970	2 004	30		
	40	8327	422	6897	239	8771	639	.770 2965	2 005	20		
	50	8749	422	6659	238	9411	640	.770 0961	2 004	10		
28	0	0.491 9171		0.870 6420		0.565 0050		1.769 8958		0	32	
	10	9593	422	6182	238	0690	640	.769 6954	2 004	50		
	20	0.492 0015	422	5943	239	1330	640	.769 4951	2 003	40		
	30	0437	423	5705	238	1969	639	.769 2949	2 002	30		
	40	0860	423	5466	239	2609	640	.769 0946	2 003	20		
	50	1282	422	5228	238	3249	640	.768 8944	2 002	10		
29	0	0.492 1704		0.870 4989		0.565 3888		1.768 6943		0	31	
	10	2126	422	4750	239	4528	640	.768 4941	2 002	50		
	20	2548	422	4512	238	5168	640	.768 2940	2 001	40		
	30	2970	422	4273	239	5808	640	.768 0940	2 000	30		
	40	3392	422	4034	238	6448	640	.767 8940	2 000	20		
	50	3814	422	3796	239	7088	640	.767 6940	2 000	10		
30	0	0.492 4236		0.870 3557		0.565 7728		1.767 4940		0	30	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

60° 30'

29° 30'

	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
30	0	0.492 4236		0.870 3557		0.565 7728		1.767 4940		0	30	
	10	4658	422	3318	239	8368	640	.767 2941	1.999	50		
	20	5079	421	3079	239	9008	640	.767 0942	1.999	40		
	30	5501	421	2841	238	9648	640	.766 8944	1.998	30		
	40	5923	422	2602	239	0.566 0288	640	.766 6945	1.999	20		
	50	6345	422	2363	239	0928	640	.766 4948	1.997	10		
									1.998			
31	0	0.492 6767		0.870 2124		0.566 1568		1.766 2950		0	29	
	10	7189	422	1885	239	2209	641	.766 0953	1.997	50		
	20	7611	422	1646	239	2849	640	.765 8956	1.997	40		
	30	8033	422	1408	238	3489	640	.765 6960	1.996	30		
	40	8455	422	1169	239	4130	641	.765 4963	1.997	20		
	50	8876	421	0930	239	4770	640	.765 2968	1.995	10		
									1.996			
32	0	0.492 9298		0.870 0691		0.566 5410		1.765 0972		0	28	
	10	9720	422	0452	239	6051	641	.764 8977	1.995	50		
	20	0.493 0142	422	0213	239	6691	640	.764 6982	1.995	40		
	30	0564	421	0.869 9974	239	7332	641	.764 4988	1.994	30		
	40	0985	421	9735	239	7972	640	.764 2994	1.994	20		
	50	1407	422	9496	240	8613	641	.764 1000	1.994	10		
									1.993			
33	0	0.493 1829		0.869 9256		0.566 9254		1.763 9007		0	27	
	10	2251	422	9017	239	9894	640	.763 7014	1.993	50		
	20	2672	421	8778	239	0.567 0535	641	.763 5021	1.993	40		
	30	3094	422	8539	239	1176	641	.763 3028	1.993	30		
	40	3516	422	8300	239	1816	640	.763 1036	1.992	20		
	50	3938	421	8061	240	2457	641	.762 9045	1.991	10		
									1.992			
34	0	0.493 4359		0.869 7821		0.567 3098		1.762 7053		0	26	
	10	4781	422	7582	239	3739	641	.762 5062	1.991	50		
	20	5203	422	7343	239	4380	641	.762 3072	1.990	40		
	30	5624	421	7104	239	5021	641	.762 1081	1.991	30		
	40	6046	422	6864	240	5662	641	.761 9091	1.990	20		
	50	6468	421	6625	239	6303	641	.761 7102	1.989	10		
									1.990			
35	0	0.493 6889		0.869 6386		0.567 6944		1.761 5112		0	25	
	10	7311	422	6146	240	7585	641	.761 3123	1.989	50		
	20	7732	421	5907	239	8226	641	.761 1135	1.988	40		
	30	8154	422	5668	240	8867	641	.760 9146	1.989	30		
	40	8576	422	5428	239	9508	641	.760 7158	1.988	20		
	50	8997	421	5189	240	0.568 0149	642	.760 5171	1.987	10		
									1.988			
36	0	0.493 9419		0.869 4949		0.568 0791		1.760 3183		0	24	
	10	9840	422	4710	240	1432	641	.760 1197	1.986	50		
	20	0.494 0262	421	4470	239	2073	642	.759 9210	1.987	40		
	30	0683	421	4231	239	2715	642	.759 7224	1.986	30		
	40	1105	422	3991	240	3356	641	.759 5238	1.986	20		
	50	1526	422	3752	240	3997	642	.759 3252	1.985	10		
									1.985			
37	0	0.494 1948		0.869 3512		0.568 4639		1.759 1267		0	23	
	10	2369	422	3273	239	5280	641	.758 9282	1.985	50		
	20	2791	421	3033	240	5922	642	.758 7297	1.985	40		
	30	3212	421	2793	240	6564	642	.758 5313	1.984	30		
	40	3634	422	2554	239	7205	641	.758 3329	1.984	20		
	50	4055	421	2314	240	7847	642	.758 1346	1.983	10		
									1.984			
38	0	0.494 4476		0.869 2074		0.568 8488		1.757 9362		0	22	
	10	4898	422	1834	240	9130	642	.757 7380	1.982	50		
	20	5319	421	1595	239	9772	642	.757 5397	1.983	40		
	30	5741	421	1355	240	0.569 0414	642	.757 3415	1.982	30		
	40	6162	421	1115	240	1055	641	.757 1433	1.982	20		
	50	6583	422	0875	239	1697	642	.756 9451	1.982	10		
									1.981			
39	0	0.494 7005		0.869 0636		0.569 2399		1.756 7470		0	21	
	10	7426	421	0396	240	2981	642	.756 5489	1.981	50		
	20	7847	422	0156	240	3623	642	.756 3509	1.980	40		
	30	8269	421	0.868 9916	240	4265	642	.756 1529	1.980	30		
	40	8690	421	9676	240	4907	642	.755 9549	1.980	20		
	50	9111	421	9436	240	5549	642	.755 7569	1.979	10		
									1.979			
40	0	0.494 9532		0.868 9196		0.569 6191		1.755 5590		0	20	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff.	"	'	Proportional Parts

60° 20'

60° 10'

"	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff	"	"	Proportional Parts
40	0	0.494 9532	422	0.868 9196	240	0.569 6191	642	1.755 5590	1 979	0	20	
	10	9954	421	8956	240	6833	643	.755 3611	1 978	50		
	20	0.495 0375	421	8716	240	7476	642	.755 1633	1 978	40		Sine
	30	0796	421	8476	240	8118	642	.754 9655	1 978	30		420 421 422
	40	1217	422	8236	240	8760	642	.754 7677	1 978	20		1 42 0 42 1 42 2
	50	1639	421	7996	240	9402	643	.754 5699	1 977	10		2 84 0 84 2 84 4
41	0	0.495 2060	421	0.868 7756	240	0.570 0045	642	1.754 3722	1 977	0	19	3 126 0 126 3 126 6
	10	2481	421	7516	240	0687	642	.754 1745	1 976	50		4 168 0 168 4 168 8
	20	2902	421	7276	240	1329	642	.753 9769	1 976	40		5 210 0 210 5 211 0
	30	3323	421	7036	240	1972	642	.753 7793	1 976	30		6 252 0 252 6 253 2
	40	3744	422	6796	241	2614	643	.753 5817	1 976	20		7 294 0 294 7 295 4
	50	4166	421	6555	240	3257	642	.753 3841	1 975	10		8 336 0 336 8 337 6
42	0	0.495 4587	421	0.868 6315	240	0.570 3899	643	1.753 1866	1 974	0	18	9 378 0 378 9 379 8
	10	5008	421	6075	240	4542	642	.752 9892	1 974	50		
	20	5429	421	5835	241	5184	643	.752 7917	1 974	40		Cosine
	30	5850	421	5594	240	5827	643	.752 5943	1 974	30		240 241 242
	40	6271	421	5354	240	6470	642	.752 3969	1 973	20		1 24 0 24 1 24 2
	50	6692	421	5114	240	7112	643	.752 1996	1 973	10		2 48 0 48 2 48 4
43	0	0.495 7113	421	0.868 4874	241	0.570 7755	643	1.752 0023	1 973	0	17	3 72 0 72 3 72 6
	10	7534	421	4633	240	8398	643	.751 8050	1 973	50		4 96 0 96 4 96 8
	20	7955	421	4393	241	9041	643	.751 6077	1 972	40		5 120 0 120 5 121 0
	30	8376	421	4152	240	9684	643	.751 4105	1 972	30		6 144 0 144 6 145 2
	40	8797	421	3912	240	0 571 0327	643	.751 2133	1 972	20		7 168 0 168 7 169 4
	50	9218	421	3672	241	0969	642	.751 0162	1 971	10		8 192 0 192 8 193 6
44	0	0.495 9639	421	0.868 3431	240	0.571 1612	643	1.750 8191	1 971	0	16	9 216 0 216 9 217 8
	10	0.496 0060	421	3191	241	2255	643	.750 6220	1 970	50		Tangent
	20	0481	421	2950	240	2898	643	.750 4250	1 970	40		642 643
	30	0902	421	2710	240	3541	643	.750 2280	1 970	30		1 64 2 64 3
	40	1323	421	2469	241	4185	644	.750 0310	1 970	20		2 128 4 128 6
	50	1744	421	2229	241	4828	643	.749 8340	1 969	10		3 192 6 192 9
45	0	0.496 2165	421	0.868 1988	240	0.571 5471	643	1.749 6371	1 969	0	15	4 256 8 257 2
	10	2586	421	1748	241	6114	643	.749 4402	1 968	50		5 321 0 321

29° 50'

	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
50	0	0.497 4787		0.867 4762		0.573 4783		1.743 7453		0	10	
	10	5208	421	4521	241	5427	644	.743 5494	1959	50		
	20	5628	420	4279	242	6071	644	.743 3536	1958	40		
	30	6049	421	4038	241	6715	644	.743 1578	1958	30		
	40	6469	420	3797	241	7360	645	.742 9620	1958	20		
	50	6890	421	3556	241	8004	644	.742 7662	1958	10		
			420		242		645		1957			
51	0	0.497 7310		0.867 3314		0.573 8649		1.742 5705		0	9	
	10	7731	421	3073	241	9293	644	.742 3748	1957	50		
	20	8151	420	2832	241	9938	645	.742 1792	1956	40		
	30	8572	421	2590	242	0 574 0582	644	.741 9836	1956	30		
	40	8992	420	2349	241	1227	645	.741 7880	1956	20		
	50	9413	421	2108	241	1872	645	.741 5924	1956	10		
			420		242		644		1955			
52	0	0.497 9833		0.867 1866		0.574 2516		1.741 3969		0	8	
	10	0 498 0254	421	1625	241	3161	645	.741 2014	1955	50		
	20	0674	420	1383	242	3806	645	.741 0060	1954	40		
	30	1094	420	1142	241	4450	644	.740 8106	1954	30		
	40	1515	421	0900	242	5095	645	.740 6152	1954	20		
	50	1935	420	0659	241	5740	645	.740 4198	1954	10		
			420		242		645		1953			
53	0	0.498 2355		0.867 0417		0.574 6385		1.740 2245		0	7	
	10	2776	421	0176	241	7030	645	.740 0292	1953	50		
	20	3196	420	0 866 9934	242	7675	645	.739 8340	1952	40		
	30	3616	420	9692	241	8320	645	.739 6388	1952	30		
	40	4037	421	9451	241	8965	645	.739 4436	1952	20		
	50	4457	420	9209	242	9610	645	.739 2484	1952	10		
			420		242		645		1951			
54	0	0.498 4877		0.866 8967		0.575 0255		1.739 0533		0	6	
	10	5298	421	8726	241	0900	645	.738 8582	1951	50		
	20	5718	420	8484	242	1545	645	.738 6632	1950	40		
	30	6138	420	8242	242	2191	646	.738 4681	1951	30		
	40	6558	420	8001	241	2836	645	.738 2731	1950	20		
	50	6979	421	7759	242	3481	645	.738 0782	1949	10		
			420		242		645		1949			
55	0	0.498 7399		0.866 7517		0.575 4126		1.737 8833		0	5	
	10	7819	420	7275	242	4772	646	.737 6884	1949	50		
	20	8239	420	7033	242	5417	645	.737 4935	1949	40		
	30	8659	421	6792	241	6063	646	.737 2987	1948	30		
	40	9080	420	6550	242	6708	645	.737 1039	1948	20		
	50	9500	420	6308	242	7354	646	.736 9091	1948	10		
			420		242		645		1947			
56	0	0.498 9920		0.866 6066		0.575 7999		1.736 7144		0	4	
	10	0.499 0340	420	5824	242	8645	646	.736 5197	1947	50		
	20	0760	420	5582	242	9290	645	.736 3251	1946	40		
	30	1180	420	5340	242	9936	646	.736 1304	1947	30		
	40	1600	420	5098	242	0 576 0582	646	.735 9358	1946	20		
	50	2021	421	4856	242	1227	645	.735 7413	1945	10		
			420		242		646		1945			
57	0	0.499 2441		0.866 4614		0.576 1873		1.735 5468		0	3	
	10	2861	420	4372	242	2519	646	.735 3523	1945	50		
	20	3281	420	4130	242	3165	645	.735 1578	1945	40		
	30	3701	420	3888	242	3810	645	.734 9634	1944	30		
	40	4121	420	3646	242	4456	646	.734 7690	1944	20		
	50	4541	420	3404	243	5102	646	.734 5746	1944	10		
			420		243		646		1943			
58	0	0.499 4961		0.866 3161		0.576 5748		1.734 3803		0	2	
	10	5381	420	2919	242	6394	646	.734 1860	1943	50		
	20	5801	420	2677	242	7040	646	.733 9917	1943	40		
	30	6221	420	2435	242	7686	646	.733 7975	1942	30		
	40	6641	420	2193	242	8333	647	.733 6033	1942	20		
	50	7061	420	1950	243	8979	646	.733 4091	1942	10		
			420		242		646		1942			
59	0	0.499 7481		0.866 1708		0.576 9625		1.733 2149		0	1	
	10	7901	420	1466	242	0 577 0271	646	.733 0208	1941	50		
	20	8320	419	1224	242	0917	646	.732 8268	1940	40		
	30	8740	420	0981	243	1564	647	.732 6327	1941	30		
	40	9160	420	0739	242	2210	646	.732 4387	1940	20		
	50	9580	420	0496	243	2856	646	.732 2447	1940	10		
			420		242		647		1939			
60	0	0.500 0000		0.866 0254		0.577 3503		1.732 0508		0	0	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	"	Proportional Parts

60° 0'

30° 0'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
0	0	0.500 0000		0.866 0254		0.577 3503		1.732 0508		0	60	
	10	0420	420	0012	242	4149	646	.731 8569	1 939	50		Sine
	20	0840	420	0865 9769	242	4796	646	.731 6630	1 938	40		419 420
	30	1260	420	9527	243	5442	647	.731 4692	1 938	30		1 41 9 42 0
	40	1679	419	9284	242	6089	647	.731 2754	1 938	20		2 83 8 84 0
	50	2099	420	9042	243	6735	647	.731 0816	1 938	10		3 125 7 126 0
1	0	0.500 2519		0.865 8799		0.577 7382		1.730 8878		0	59	4 167 6 168 0
	10	2939	420	8557	242	8029	647	.730 6941	1 937	50		5 209 5 210 0
	20	3359	420	8314	243	8675	646	.730 5004	1 937	40		6 251 4 252 0
	30	3778	419	8072	242	9322	647	.730 3068	1 937	30		7 293 3 294 0
	40	4198	420	7829	243	9969	647	.730 1132	1 936	20		8 335 2 336 0
	50	4618	419	7586	242	0.578 0615	646	.729 9196	1 936	10		9 377 1 378 0
2	0	0.500 5037		0.865 7344		0.578 1262		1.729 7260		0	58	Cosine
	10	5457	420	7101	243	1909	647	.729 5325	1 935	50		242 243 244
	20	5877	420	6858	242	2556	647	.729 3390	1 935	40		1 24 2 24 3 24 4
	30	6297	419	6616	243	3203	647	.729 1456	1 934	30		2 48 4 48 6 48 8
	40	6716	420	6373	243	3850	647	.728 9522	1 934	20		3 72 6 72 9 73 2
	50	7136	420	6130	243	4497	647	.728 7588	1 934	10		4 96 8 97 2 97 6
3	0	0.500 7556		0.865 5887		0.578 5144		1.728 5654		0	57	5 121 0 121 5 122 0
	10	7975	420	5645	242	5791	647	.728 3721	1 933	50		6 145 2 145 8 146 4
	20	8395	419	5402	243	6438	647	.728 1788	1 933	40		7 169 1 170 1 170 8
	30	8814	420	5159	243	7085	648	.727 9855	1 932	30		8 193 6 194 4 195 2
	40	9234	420	4916	243	7733	647	.727 7923	1 932	20		9 217 8 218 7 219 6
	50	9654	419	4673	243	8380	647	.727 5991	1 931	10		Tangent
4	0	0.501 0073		0.865 4430		0.578 9027		1.727 4060		0	56	646 647
	10	0493	420	4188	242	9674	647	.727 2128	1 932	50		1 64 6 64 7
	20	0912	419	3945	243	0.579 0322	648	.727 0197	1 931	40		2 129 2 129 4
	30	1332	420	3702	243	0969	647	.726 8267	1 930	30		3 193 8 194 1
	40	1751	419	3459	243	1617	648	.726 6336	1 931	20		4 258 4 258 8
	50	2171	420	3216	243	2264	647	.726 4406	1 930	10		5 323 0 324 5
5	0	0.501 2591		0.865 2973		0.579 2912		1.726 2477		0	55	6 387 6 388 2
	10	3010	420	2730	243	3559	647	.726 0547	1 930	50		7 452 2 452 9
	20	3430	420	2487	243	4207	648	.725 8618	1 929	40		8 516 8 517 6
	30	3849	419	2244	243	4854	647	.725 6689	1 929	30		9 581 4 582 3
	40	4268	420	2000	244	5502	648	.725 4761	1 928	20		648 649
	50	4688	419	1757	243	6150	647	.725 2833	1 928	10		1 64 8 64 9
6	0	0.501 5107		0.865 1514		0.579 6797		1.725 0905		0	54	2 129 6 129 8
	10	5527	420	1271	243	7445	648	.724 8978	1 927	50		3 194 4 194 7
	20	5946	419	1028	243	8093	648	.724 7051	1 927	40		4 259 2 259 6
	30	6366	420	0785	244	8741	647	.724 5124	1 927	30		5 324 0 324 5
	40	6785	419	0541	243	9388	648	.724 3197	1 926	20		6 388 8 389 4
	50	7204	420	0298	243	0.580 0036	648	.724 1271	1 925	10		7 453 6 454 3
7	0	0.501 7624		0.865 0055		0.580 0684		1.723 9346		0	53	8 518 4 519 2
	10	8043	419	0 864 9812	243	1332	648	.723 7420	1 925	50		9 583 2 584 1
	20	8462	420	9568	243	1980	648	.723 5495	1 925	40		Cotangent
	30	8882	419	9325	243	2628	648	.723 3570	1 925	30		1940 1930
	40	9301	419	9082	244	3276	648	.723 1645	1 924	20		1 194 0 193 0
	50	9720	420	8838	243	3924	649	.722 9721	1 924	10		2 388 0 386 0
8	0	0.502 0140		0.864 8595		0.580 4573		1.722 7797		0	52	3 582 0 579 0
	10	0559	419	8352	243	5221	648	.722 5874	1 923	50		4 776 0 772 0
	20	0978	419	8108	244	5869	648	.722 3951	1 923	40		5 970 0 965 0
	30	1398	420	7865	243	6517	648	.722 2028	1 923	30		6 1164 0 1158 0
	40	1817	419	7621	244	7166	649	.722 0105	1 923	20		7 1358 0 1351 0
	50	2236	419	7378	244	7814	648	.721 8183	1 922	10		8 1552 0 1544 0
9	0	0.502 2655		0.864 7134		0.580 8462		1.721 6261		0	51	9 1716 0 1737 0
	10	3075	420	6891	243	9111	649	.721 4339	1 922	50		1220
	20	3494	419	6647	244	9759	648	.721 2418	1 921	40		1 192 0
	30	3913	419	6404	244	0.581 0408	649	.721 0497	1 921	30		2 384 0
	40	4332	419	6160	243	1056	649	.720 8576	1 920	20		3 576 0
	50	4751	419	5917	244	1705	648	.720 6656	1 920	10		4 768 0
10	0	0.502 5170		0.864 5673		0.581 2353		1.720 4736		0	50	5 960 0
												6 1152 0
												7 1344 0
												8 1536 0
												9 1728 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff			Proportional Parts

59° 50'

30° 10'

"	'	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff.			Proportional Parts
10	0	0.502 5170		0.864 5673		0.581 2353		1.720 4736		0	50	
	10	5590	420	5429	244	3002	649	.720 2816	1 920	50		
	20	6009	419	5186	243	3650	648	.720 0897	1 919	40		Sine
	30	6428	419	4942	244	4299	649	.719 8978	1 919	30		418 419 420
	40	6847	419	4698	244	4948	649	.719 7059	1 919	20		1 41 8 41 9 42 0
	50	7266	419	4455	243	5597	649	.719 5140	1 919	10		2 83 6 83 8 84 0
			419		244		648		1 918			3 125 4 125 7 126 0
11	0	0.502 7885		0.864 4211		0.581 6245		1.719 3222		0	49	
	10	8104	419	3967	244	6894	649	.719 1304	1 918	50		4 167 2 167 6 168 0
	20	8523	419	3723	244	7543	649	.718 9387	1 917	40		5 209 0 209 5 210 0
	30	8942	419	3480	243	8192	649	.718 7470	1 917	30		6 250 8 251 4 252 0
	40	9361	419	3236	244	8841	649	.718 5553	1 917	20		7 292 6 293 3 294 0
	50	9780	419	2992	244	9490	649	.718 3636	1 917	10		8 334 4 335 2 336 0
			419		244		649		1 916			9 376 2 377 1 378 0
12	0	0.503 0199		0.864 2748		0.582 0139		1.718 1720		0	48	
	10	0618	419	2504	244	0788	649	.717 9804	1 916	50		Cosine
	20	1037	419	2260	244	1437	649	.717 7889	1 915	40		243 244 245
	30	1456	419	2016	244	2086	649	.717 5974	1 915	30		1 24 3 24 4 24 5
	40	1875	419	1772	244	2735	649	.717 4059	1 915	20		2 48 6 48 8 49 0
	50	2294	419	1528	244	3385	650	.717 2144	1 915	10		3 72 9 73 2 73 5
			419		244		649		1 914			4 97 2 97 6 98 0
13	0	0.503 2713		0.864 1284		0.582 4034		1.717 0230		0	47	
	10	3132	419	1040	244	4683	649	.716 8316	1 914	50		5 121 5 122 0 122 5
	20	3551	419	0796	244	5332	649	.716 6402	1 914	40		6 145 8 146 4 147 0
	30	3970	419	0552	244	5982	650	.716 4489	1 913	30		7 170 1 170 8 171 5
	40	4389	419	0308	244	6631	649	.716 2576	1 913	20		8 194 4 195 2 196 0
	50	4808	419	0064	244	7281	650	.716 0663	1 913	10		9 218 7 219 6 220 5
			419		244		649		1 912			
14	0	0.503 5227		0.863 9820		0.582 7930		1.715 8751		0	46	
	10	5646	419	9576	244	8580	650	.715 6839	1 912	50		Tangent
	20	6064	419	9332	244	9229	649	.715 4927	1 912	40		648 649
	30	6483	419	9088	244	9879	650	.715 3016	1 911	30		1 64 8 64 9
	40	6902	419	8843	245	0528	649	.715 1104	1 912	20		2 120 0 120 8
	50	7321	419	8599	244	1178	650	.714 9194	1 910	10		3 194 4 194 7
			419		244		650		1 911			4 250 2 250 6
15	0	0.503 7740		0.863 8355		0.583 1828		1.714 7283		0	45	
	10	8159	419	8111	244	2477	649	.714 5373	1 910	50		5 321 0 324 5
	20	8577	419	7867	244	3127	650	.714 3463	1 910	40		6 388 8 389 4
	30	8996	419	7622	245	3777	650	.714 1554	1 909	30		7 453 6 454 3
	40	9415	419	7378	244	4427	650	.713 9645	1 909	20		8 518 4 519 2
	50	9834	418	7134	245	5077	649	.713 7736	1 909	10		9 583 2 584 1
			418		245		649		1 908			650 651
16	0	0.504 0252		0.863 6889		0.583 5726		1.713 5827		0	44	
	10	0671	419	6645	244	6376	650	.713 3919	1 908	50		1 65 0 65 1
	20	1090	419	6401	244	7026	650	.713 2011	1 908	40		2 130 0 130 2
	30	1508	418	6156	245	7676	650	.713 0103	1 908	30		3 195 0 195 3
	40	1927	419	5912	245	8326	650	.712 8196	1 907	20		4 260 0 260 4
	50	2346	419	5667	244	8977	651	.712 6289	1 907	10		5 325 0 325 5
			419		244		650		1 907			6 390 0 390 6
17	0	0.504 2765		0.863 5423		0.583 9627		1.712 4382		0	43	
	10	3183	418	5178	245	0584 0277	650	.712 2476	1 906	50		Cotangent
	20	3602	419	4934	244	0927	650	.712 0570	1 906	40		1920 1910
	30	4020	419	4689	244	1577	651	.711 8664	1 905	30		1 192 0 191 0
	40	4439	419	4445	245	2228	650	.711 6759	1 905	20		2 384 0 382 0
	50	4858	418	4200	244	2878	650	.711 4854	1 905	10		3 576 0 573 0
							650		1 905			4 768 0 764 0
18	0	0.504 5276		0.863 3956		0.584 3528		1.711 2949		0	42	
	10	5695	419	3711	245	4179	651	.711 1045	1 904	50		5 960 0 955 0
	20	6113	419	3466	244	4829	650	.710 9140	1 905	40		6 1152 0 1140 0
	30	6532	418	3222	245	5479	650	.710 7237	1 903	30		7 1344 0 1337 0
	40	6950	419	2977	245	6130	651	.710 5333	1 904	20		8 1536 0 1528 0
	50	7369	419	2732	244	6780	650	.710 3430	1 903	10		9 1728 0 1719 0
			419		244		651		1 903			1900
19	0	0.504 7788		0.863 2488		0.584 7431		1.710 1527		0	41	
	10	8206	418	2243	245	8082	651	.709 9625	1 902	50		1 190 0
	20	8625	419	1998	245	8732	650	.709 7722	1 903	40		2 380 0
	30	9043	419	1753	245	9383	651	.709 5820	1 902	30		3 570 0
	40	9462	418	1508	245	0034	651	.709 3919	1 901	20		4 760 0
	50	9880	418	1264	244	0684	650	.709 2017	1 902	10		5 950 0
			418		245		651		1 901			6 1140 0
20	0	0.505 0298		0.863 1019		0.585 1335		1.709 0116		0	40	
												7 1330 0
												8 1520 0
												9 1710 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff.	Tangent	Diff	"	'	Proportional Parts

59° 40'

30° 20'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
20	0	0.505 0298		0.863 1019		0.585 1335		1.709 0116		0	40	
	10	0717	419	0774	245	1986	651	.708 8216	1 900	50		
	20	1135	419	0529	245	2637	651	.708 6315	1 901	40		
	30	1554	419	0284	245	3288	651	.708 4415	1 900	30		
	40	1972	418	0039	245	3939	651	.708 2516	1 899	20		
	50	2390	419	0.862 9794	245	4590	651	.708 0616	1 900	10		
			419		245		651		1 899			
21	0	0.505 2809		0.862 9549		0.585 5241		1.707 8717		0	39	
	10	3227	418	9304	245	5892	651	.707 6818	1 899	50		
	20	3646	419	9059	245	6543	651	.707 4920	1 898	40		
	30	4064	418	8814	245	7194	651	.707 3022	1 898	30		
	40	4482	418	8569	245	7845	651	.707 1124	1 898	20		
	50	4901	419	8324	245	8496	652	.706 9227	1 897	10		
			418		245		652		1 898			
22	0	0.505 5319		0.862 8079		0.585 9148		1.706 7329		0	38	
	10	5737	418	7834	245	9799	651	.706 5432	1 897	50		
	20	6155	418	7589	245	0.586 0450	651	.706 3536	1 896	40		
	30	6574	419	7344	245	1101	651	.706 1640	1 896	30		
	40	6992	418	7099	245	1753	652	.705 9744	1 896	20		
	50	7410	418	6854	246	2404	651	.705 7848	1 896	10		
			418		246		652		1 895			
23	0	0.505 7828		0.862 6608		0.586 3056		1.705 6953		0	37	
	10	8247	419	6363	245	3707	651	.705 4058	1 895	50		
	20	8665	418	6118	245	4359	652	.705 2163	1 895	40		
	30	9083	418	5873	245	5010	651	.705 0269	1 894	30		
	40	9501	418	5627	246	5662	652	.704 8375	1 894	20		
	50	9919	418	5382	245	6313	651	.704 6481	1 894	10		
			419		245		652		1 894			
24	0	0.506 0338		0.862 5137		0.586 6965		1.704 4587		0	36	
	10	0756	418	4891	246	7617	652	.704 2694	1 893	50		
	20	1174	418	4646	245	8269	652	.704 0801	1 893	40		
	30	1592	418	4401	245	8920	651	.703 8909	1 892	30		
	40	2010	418	4155	246	9572	652	.703 7017	1 892	20		
	50	2428	418	3910	245	0.587 0224	652	.703 5125	1 892	10		
			418		246		652		1 892			
25	0	0.506 2846		0.862 3664		0.587 0876		1.703 3233		0	35	
	10	3264	418	3419	245	1528	652	.703 1342	1 891	50		
	20	3683	419	3173	246	2180	652	.702 9451	1 891	40		
	30	4101	418	2928	245	2832	652	.702 7560	1 891	30		
	40	4519	418	2682	246	3484	652	.702 5670	1 890	20		
	50	4937	418	2437	245	4136	652	.702 3780	1 890	10		
			418		246		652		1 890			
26	0	0.506 5355		0.862 2191		0.587 4788		1.702 1890		0	34	
	10	5773	418	1946	245	5440	652	.702 0001	1 889	50		
	20	6191	418	1700	246	6092	652	.701 8112	1 889	40		
	30	6609	418	1454	245	6745	653	.701 6223	1 889	30		
	40	7027	418	1209	246	7397	652	.701 4335	1 888	20		
	50	7445	418	0963	246	8049	653	.701 2447	1 888	10		
			418		246		653		1 888			
27	0	0.506 7863		0.862 0717		0.587 8702		1.701 0559		0	33	
	10	8281	418	0472	245	9354	652	.700 8671	1 888	50		
	20	8698	417	0226	246	0.588 0006	652	.700 6784	1 887	40		
	30	9116	418	0.861 9980	246	0659	653	.700 4897	1 887	30		
	40	9534	418	9734	246	1311	652	.700 3011	1 886	20		
	50	9952	418	9489	245	1964	653	.700 1124	1 887	10		
			418		246		652		1 886			
28	0	0.507 0370		0.861 9243		0.588 2616		1.699 9238		0	32	
	10	0788	418	8997	246	3269	653	.699 7353	1 885	50		
	20	1206	418	8751	246	3922	653	.699 5467	1 886	40		
	30	1624	418	8505	246	4574	652	.699 3582	1 885	30		
	40	2041	417	8259	246	5227	653	.699 1698	1 884	20		
	50	2459	418	8014	245	5880	653	.698 9813	1 885	10		
			418		246		653		1 884			
29	0	0.507 2877		0.861 7768		0.588 6533		1.698 7929		0	31	
	10	3295	418	7522	246	7185	652	.698 6045	1 884	50		
	20	3713	418	7276	246	7838	653	.698 4162	1 883	40		
	30	4130	417	7030	246	8491	653	.698 2279	1 883	30		
	40	4548	418	6784	246	9144	653	.698 0396	1 883	20		
	50	4966	418	6538	246	9797	653	.697 8513	1 882	10		
			418		246		653		1 882			
30	0	0.507 5384		0.861 6292		0.589 0450		1.697 6631		0	30	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	"	Proportional Parts

59° 30'

30° 30'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
30	0	0.507 5384		0.861 6292		0.589 0450		1.697 6631		0	30	
	10	5801	417	6046	246	1103	653	.697 4749	1 882	50		Sine
	20	6219	418	5799	247	1756	653	.697 2868	1 881	40		417 418
	30	6637	418	5553	246	2409	653	.697 0986	1 882	30		1 41 7 41 8
	40	7054	417	5307	246	3063	654	.696 9105	1 881	20		2 83 4 83 6
	50	7472	418	5061	246	3716	653	.696 7225	1 880	10		3 125 1 125 4
			418		246		653		1 881			4 166 8 167 2
31	0	0.507 7890		0.861 4815		0.589 4369		1.696 5344		0	29	
	10	8307	417	4569	246	5022	653	.696 3464	1 880	50		5 208 5 209 0
	20	8725	418	4322	247	5676	654	.696 1584	1 880	40		6 250 2 250 8
	30	9143	418	4076	246	6329	653	.695 9705	1 879	30		7 291 9 292 6
	40	9560	417	3830	246	6982	653	.695 7826	1 879	20		8 333 6 334 4
	50	9978	418	3584	247	7636	654	.695 5947	1 879	10		9 375 3 376 2
			418		247		653		1 878			
32	0	0.508 0396		0.861 3337		0.589 8289		1.695 4069		0	28	
	10	0813	417	3091	246	8943	654	.695 2190	1 879	50		Cosine
	20	1231	418	2845	246	9596	653	.695 0312	1 878	40		246 247 248
	30	1648	417	2598	247	10250	654	.694 8435	1 877	30		1 24 6 24 7 24 8
	40	2066	418	2352	246	10903	653	.694 6558	1 877	20		2 49 2 49 4 40 6
	50	2483	417	2106	246	1557	654	.694 4681	1 877	10		3 73 8 74 1 74 4
			418		247		654		1 877			4 98 4 98 8 99 2
33	0	0.508 2901		0.861 1859		0.590 2211		1.694 2804		0	27	
	10	3318	417	1613	246	2865	654	.694 0928	1 876	50		5 123 0 123 5 124 0
	20	3736	418	1366	247	3518	653	.693 9052	1 876	40		6 147 6 148 2 148 8
	30	4153	417	1120	246	4172	654	.693 7176	1 876	30		7 172 2 172 9 173 6
	40	4571	418	0873	247	4826	654	.693 5300	1 876	20		8 196 8 197 6 198 4
	50	4988	417	0627	246	5480	654	.693 3425	1 875	10		9 221 4 222 3 223 2
			418		247		654		1 875			
34	0	0.508 5406		0.861 0380		0.590 6134		1.693 1550		0	26	
	10	5823	417	0134	246	6788	654	.692 9676	1 874	50		Tangent
	20	6241	418	0 860 9887	247	7442	654	.692 7802	1 874	40		653 654
	30	6658	417	9641	246	8096	654	.692 5928	1 874	30		1 65 3 65 4
	40	7075	418	9394	247	8750	654	.692 4054	1 874	20		2 130 6 130 8
	50	7493	417	9147	246	9404	654	.692 2181	1 873	10		3 105 9 106 2
			418		247		654		1 873			4 261 2 261 6
35	0	0.508 7910		0.860 8901		0.591 0058		1.692 0308		0	25	
	10	8328	418	8654	247	0712	654	.691 8435	1 873	50		5 320 5 327 0
	20	8745	417	8407	247	1366	654	.691 6563	1 872	40		6 391 8 392 4
	30	9162	418	8161	246	2021	655	.691 4691	1 872	30		7 457 1 457 8
	40	9580	417	7914	247	2675	654	.691 2819	1 871	20		8 522 4 523 2
	50	9997	417	7667	247	3329	655	.691 0948	1 871	10		9 587 7 588 6
			418		247		655		1 871			655 656
36	0	0.509 0414		0.860 7420		0.591 3984		1.690 9077		0	24	
	10	0831	417	7173	247	4638	654	.690 7206	1 871	50		1 65 5 65 6
	20	1249	418	6927	246	5292	654	.690 5335	1 871	40		2 131 0 131 2
	30	1666	417	6680	247	5947	655	.690 3465	1 870	30		3 196 5 196 8
	40	2083	418	6433	247	6601	654	.690 1595	1 870	20		4 262 0 262 4
	50	2501	417	6186	247	7256	655	.689 9726	1 869	10		5 327 5 328 0
			418		247		654		1 870			6 393 0 393 6
37	0	0.509 2918		0.860 5939		0.591 7910		1.689 7866		0	23	
	10	3335	417	5692	247	8565	655	.689 5987	1 869	50		7 458 5 459 2
	20	3752	418	5445	247	9220	654	.689 4119	1 869	40		8 524 0 524 8
	30	4169	417	5198	246	9874	655	.689 2250	1 868	30		9 589 5 590 4
	40	4587	418	4951	247	0 592 0529	655	.689 0382	1 868	20		
	50	5004	417	4704	247	1184	655	.688 8514	1 867	10		Cotangent
			418		247		655		1 867			1880 1870
38	0	0.509 5421		0.860 4457		0.592 1839		1.688 6647		0	22	
	10	5838	417	4210	247	2494	655	.688 4780	1 867	50		1 188 0 187 0
	20	6255	418	3963	247	3148	654	.688 2913	1 867	40		2 376 0 374 0
	30	6672	417	3716	247	3803	655	.688 1046	1 867	30		3 564 0 561 0
	40	7089	418	3469	247	4458	655	.687 9180	1 866	20		4 752 0 748 0
	50	7507	417	3222	247	5113	655	.687 7314	1 866	10		5 940 0 935 0
			418		247		655		1 865			6 1128 0 1122 0
39	0	0.509 7924		0.860 2975		0.592 5768		1.687 5449		0	21	
	10	8341	417	2728	247	6423	655	.687 3583	1 866	50		7 1310 0 1309 0
	20	8758	418	2480	248	7079	656	.687 1718	1 865	40		8 1504 0 1496 0
	30	9175	417	2233	247	7734	655	.686 9854	1 865	30		9 1692 0 1683 0
	40	9592	418	1986	247	8389	655	.686 7989	1 864	20		
	50	0.510 0009	417	1739	248	9044	655	.686 6125	1 864	10		1860
			418				655		1 864			1 186 0
40	0	0.510 0426		0.860 1491		0.592 9699		1.686 4261		0	20	
												2 372 0
												3 558 0
												4 744 0
												5 930 0
												6 1116 0
												7 1302 0
												8 1488 0
												9 1674 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

59° 20'

30° 40'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
40	0	0.510 0428		0.860 1491		0.592 9699		1.686 4261		0	20	
	10	0843	417	1244	247	0.593 0355	656	.686 2398	1 863	50		Sine
	20	1260	417	0997	247		655	.686 0535	1 863	40		416 417
	30	1677	417	0750	247		655	.685 8672	1 863	30		1 41 6 41 7
	40	2094	417	0502	248		656	.685 6809	1 863	20		2 83 2 83 4
	50	2511	417	0255	247		655	.685 4947	1 862	10		3 124 8 125 1
			417		248		656					4 166 4 166 8
41	0	0.510 2928		0 860 0007		0.593 3632		1 685 3085		0	19	
	10	3345	417	8275	247	0.593 9760	655	.685 1223	1 862	50		5 208 0 208 5
	20	3762	417	9513	247		656	.684 9362	1 861	40		6 249 6 250 2
	30	4179	417	9265	248		655	.684 7501	1 861	30		7 291 2 291 9
	40	4595	416	9018	247		656	.684 5640	1 861	20		8 332 8 333 6
	50	5012	417	8770	248		656	.684 3780	1 860	10		9 374 4 375 3
			417		247		655		1 861			
42	0	0.510 5429		0.859 8523		0.593 7665		1.684 1919		0	18	
	10	5846	417	8221	248		656	.684 0060	1 859	50		Cosine
	20	6263	417	8028	247		656	.683 8200	1 860	40		247 248 249
	30	6680	417	7780	248		656	.683 6341	1 859	30		1 24 7 24 8
	40	7097	417	7532	248	0.594 0189	656	.683 4482	1 859	20		2 49 4 49 6 49 8
	50	7513	416	7285	247		656	.683 2623	1 859	10		3 74 1 74 4 74 7
			417		248		656		1 858			4 98 8 99 2 99 6
43	0	0.510 7930		0.859 7037		0.594 1501		1 683 0765		0	17	
	10	8347	417	6790	247		656	.682 8907	1 858	50		5 124 5 124 0 124 5
	20	8764	417	6542	248		656	.682 7049	1 858	40		6 148 2 148 8 149 4
	30	9181	417	6294	248		656	.682 5192	1 857	30		7 172 9 173 6 174 3
	40	9597	416	6047	247		656	.682 3335	1 857	20		8 197 6 198 4 199 2
	50	0 511 0014	417	5799	248		656	.682 1478	1 857	10		9 222 3 223 2 224 1
			417		248		656		1 857			
44	0	0.511 0431		0.859 5551		0.594 5437		1.681 9621		0	16	
	10	0847	416	5303	248		656	.681 7765	1 856	50		Tangent
	20	1264	417	5055	248		656	.681 5909	1 856	40		655 656
	30	1681	417	4808	247		657	.681 4054	1 855	30		1 65 5 65 6
	40	2098	417	4560	248		656	.681 2198	1 856	20		2 131 0 131 2
	50	2514	416	4312	248		656	.681 0343	1 855	10		3 196 5 196 8
			417		248		657		1 854			4 262 0 262 4
45	0	0.511 2931		0 859 4064		0 594 9375		1.680 8489		0	15	
	10	3348	417	3816	248	0 595 0031	656	.680 6634	1 855	50		5 327 5 328 0
	20	3764	416	3568	248		657	.680 4780	1 854	40		6 394 0 393 6
	30	4181	417	3320	248		656	.680 2927	1 853	30		7 458 5 459 2
	40	4597	416	3072	248		657	.680 1073	1 854	20		8 524 0 524 8
	50	5014	417	2824	248		656	.679 9220	1 853	10		9 589 5 590 4
			417		248		657		1 853			
46	0	0.511 5431		0.859 2576		0.595 3314		1 679 7367		0	14	
	10	5847	416	2328	248		657	.679 5514	1 853	50		657 658
	20	6264	417	2080	248		656	.679 3662	1 852	40		1 65 7 65 8
	30	6680	416	1832	248		657	.679 1810	1 853	30		2 131 4 131 6
	40	7097	417	1584	248		657	.678 9959	1 851	20		3 197 1 197 4
	50	7513	416	1336	248		657	.678 8107	1 852	10		4 262 8 263 2
			417		248		657		1 851			5 328 5 329 0
47	0	0.511 7930		0.859 1088		0.595 7255		1.678 6256		0	13	
	10	8346	417	0840	248		656	.678 4405	1 851	50		6 394 2 394 8
	20	8763	416	0592	248		657	.678 2555	1 850	40		7 459 9 460 6
	30	9179	417	0344	248		657	.678 0705	1 850	30		8 525 6 526 4
	40	9596	417	0095	249		657	.677 8855	1 850	20		9 591 3 592 2
	50	0 512 0012	416	0 858 9847	248	0.596 0539	657	.677 7005	1 850	10		
			417		248		657		1 849			
48	0	0.512 0429		0.858 9599		0.596 1196		1 677 5156		0	12	
	10	0845	416	9351	248		658	.677 3307	1 849	50		Cotangent
	20	1261	417	9102	249		657	.677 1458	1 849	40		1860 1850
	30	1678	416	8854	248		657	.676 9610	1 848	30		1 186 0 185 0
	40	2094	416	8606	248		657	.676 7762	1 848	20		2 372 0 370 0
	50	2511	417	8357	249		657	.676 5914	1 848	10		3 558 0 555 0
			416		248		658		1 847			4 744 0 740 0
49	0	0.512 2927		0.858 8109		0.596 5140		1.676 4067		0	11	
	10	3343	416	7861	248		657	.676 2220	1 847	50		5 930 0 925 0
	20	3760	417	7612	249		657	.676 0373	1 847	40		6 1116 0 1110 0
	30	4176	416	7364	248		658	.675 8526	1 847	30		7 1302 0 1295 0
	40	4592	416	7116	248		657	.675 6680	1 846	20		8 1488 0 1480 0
	50	5009	417	6867	249		658	.675 4834	1 846	10		9 1674 0 1665 0
			416		248		657		1 846			
50	0	0.512 5425		0.858 6619		0.596 9084		1.675 2988		0	10	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

59° 10'

30° 50'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff.			Proportional Parts
50	0	0.512 5425		0.858 6619		0.596 9084		1.675 2988		0	10	
	10	5841	416	6370	249	9742	658	.675 1143	1 845	50		Sine
	20	6258	417	6122	248	0.597 0399	657	.674 9298	1 845	40		415 416 417
	30	6674	416	5873	249	1057	658	.674 7453	1 845	30		1 41 5 41 6 41 7
	40	7090	416	5624	249	1715	658	.674 5609	1 844	20		2 83 0 83 2 83 4
	50	7506	416	5376	248	2373	658	.674 3765	1 844	10		3 124 5 124 8 125 1
			417		249		657		1 844			4 166 0 166 4 166 8
51	0	0.512 7923		0.858 5127		0.597 3030		1.674 1921		0	9	
	10	8339	416	4879	248	3688	658	.674 0077	1 844	50		5 207 5 208 0 208 5
	20	8755	416	4630	249	4346	658	.673 8234	1 843	40		6 249 0 249 6 250 2
	30	9171	416	4381	249	5004	658	.673 6391	1 843	30		7 200 5 201 2 201 0
	40	9587	416	4133	248	5662	658	.673 4548	1 843	20		8 332 0 332 8 333 6
	50	0.513 0003	416	3884	249	6320	658	.673 2706	1 842	10		9 373 5 374 4 375 3
			417		249		658		1 842			
52	0	0.513 0420		0.858 3635		0.597 6978		1.673 0864		0	8	
	10	0836	416	3387	248	7636	658	.672 9022	1 842	50		Cosine
	20	1252	416	3138	249	8294	658	.672 7181	1 841	40		248 249 250
	30	1668	416	2889	249	8952	658	.672 5340	1 841	30		1 24 8 24 9 25 0
	40	2084	416	2640	249	9610	658	.672 3499	1 841	20		2 49 6 49 8 50 0
	50	2500	416	2391	248	0.598 0268	658	.672 1658	1 840	10		3 74 4 74 7 75 0
			416		249		658		1 840			4 99 2 99 6 100 0
53	0	0.513 2916		0.858 2143		0.598 0926		1.671 9818		0	7	
	10	3332	416	1894	249	1585	659	.671 7978	1 840	50		5 124 0 124 5 125 0
	20	3748	416	1645	249	2243	658	.671 6138	1 840	40		6 148 8 149 4 150 0
	30	4164	416	1396	249	2901	658	.671 4299	1 839	30		7 173 6 174 3 175 0
	40	4580	416	1147	249	3560	659	.671 2460	1 839	20		8 198 4 199 2 200 0
	50	4997	417	0898	249	4218	658	.671 0621	1 839	10		9 223 2 224 1 225 0
			416		249		659		1 839			
54	0	0.513 5413		0.858 0649		0.598 4877		1.670 8782		0	6	
	10	5829	416	0400	249	5535	658	.670 6944	1 838	50		Tangent
	20	6244	415	0151	249	6194	659	.670 5106	1 838	40		657 658
	30	6660	416	0	249	6852	658	.670 3269	1 837	30		1 65 7 65 8
	40	7076	416	9653	249	7511	659	.670 1431	1 837	20		2 131 4 131 6
	50	7492	416	9404	249	8169	658	.669 9595	1 836	10		3 197 1 197 4
			416		249		659		1 836			4 262 8 263 2
55	0	0.513 7908		0.857 9155		0.598 8828		1.669 7758		0	5	
	10	8324	416	8906	249	9487	659	.669 5921	1 837	50		5 328 5 329 0
	20	8740	416	8657	249	0.599 0146	659	.669 4085	1 836	40		6 304 2 304 8
	30	9156	416	8407	250	0804	658	.669 2250	1 835	30		7 459 9 460 6
	40	9572	416	8158	249	1463	659	.668 0414	1 835	20		8 525 6 526 4
	50	9988	416	7909	249	2122	659	.668 8579	1 835	10		9 591 3 592 2
			416		249		659		1 835			
56	0	0.514 0404		0.857 7660		0.599 2781		1.668 6744		0	4	
	10	0820	416	7411	249	3440	659	.668 4909	1 835	50		659 660
	20	1235	415	7161	250	4099	659	.668 3075	1 834	40		1 65 9 66 0
	30	1651	416	6912	249	4758	659	.668 1241	1 834	30		2 131 8 132 0
	40	2067	416	6663	249	5417	659	.667 9407	1 834	20		3 197 7 198 0
	50	2483	416	6414	250	6076	659	.667 7574	1 833	10		4 263 0 264 0
			416		250		659		1 833			5 329 5 330 0
57	0	0.514 2899		0.857 6164		0.599 6735		1.667 5741		0	3	
	10	3314	415	5915	249	7394	659	.667 3908	1 833	50		6 385 4 386 0
	20	3730	416	5666	250	8054	660	.667 2075	1 833	40		7 461 3 462 0
	30	4146	416	5416	250	8713	659	.667 0243	1 832	30		8 527 2 528 0
	40	4562	416	5167	249	9372	659	.666 8411	1 832	20		9 593 1 594 0
	50	4977	415	4917	250	0	660	.666 6579	1 831	10		
			416		249	0.600 0031	660		1 831			
58	0	0.514 5393		0.857 4668		0.600 0691		1.666 4748		0	2	
	10	5809	416	4418	250	1350	659	.666 2917	1 831	50		Cotangent
	20	6224	415	4169	249	2010	660	.666 1086	1 831	40		1850 1840
	30	6640	416	3919	250	2669	659	.665 9256	1 830	30		1 185 0 184 0
	40	7056	416	3670	249	3329	660	.665 7426	1 830	20		2 370 0 368 0
	50	7471	415	3420	250	3988	659	.665 5596	1 830	10		3 555 0 552 0
			416		249		660		1 830			4 740 0 736 0
59	0	0.514 7887		0.857 3171		0.600 4648		1.665 3766		0	1	
	10	8303	416	2921	250	5307	659	.665 1937	1 829	50		5 925 0 920 0
	20	8718	415	2672	249	5967	660	.665 0108	1 829	40		6 1110 0 1104 0
	30	9134	416	2422	250	6627	660	.664 8279	1 829	30		7 1295 0 1288 0
	40	9550	415	2172	250	7287	660	.664 6451	1 828	20		8 1480 0 1472 0
	50	9965	415	1923	249	7946	659	.664 4623	1 828	10		9 1665 0 1656 0
			416		250		660		1 828			
60	0	0.515 0381		0.857 1673		0.600 8606		1.664 2795		0	0	
		Cosine	Diff	Sine	Diff.	Cotangent	Diff	Tangent	Diff.	"	'	Proportional Parts

59° 0'

31° 0'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
0	0	0.515 0381		0.857 1673		0.600 8606		1.664 2795		0	60	
	10	0796	415	1423	250	9266	660	.664 0967	1 828	50		
	20	1212	416	1174	249	9926	660	.663 9140	1 827	40		
	30	1627	415	0924	250	0586	660	.663 7313	1 827	30		
	40	2043	416	0674	250	1246	660	.663 5487	1 826	20		
	50	2458	415	0424	250	1906	660	.663 3660	1 827	10		
			416						1 826			
1	0	0.515 2874		0.857 0174		0.601 2568		1.663 1834		0	59	
	10	3289	415	0.856 9925	249	3226	660	.663 0008	1 826	50		
	20	3705	416	9675	250	3886	660	.662 8183	1 825	40		
	30	4120	415	9425	250	4546	660	.662 6358	1 825	30		
	40	4536	416	9175	250	5207	661	.662 4533	1 825	20		
	50	4951	415	8925	250	5867	660	.662 2708	1 825	10		
			416						1 824			
2	0	0.515 6367		0.856 8675		0.601 6527		1.662 0884		0	58	
	10	5782	415	8425	250	7187	660	.661 9060	1 824	50		
	20	6197	416	8175	250	7848	661	.661 7236	1 824	40		
	30	6613	415	7925	250	8508	660	.661 5413	1 823	30		
	40	7028	416	7675	250	9169	661	.661 3590	1 823	20		
	50	7444	415	7425	250	9829	660	.661 1767	1 823	10		
			416				661		1 822			
3	0	0.515 7859		0.856 7175		0.602 0490		1.660 9945		0	57	
	10	8274	415	6925	250	1150	660	.660 8122	1 823	50		
	20	8690	416	6675	250	1811	661	.660 6300	1 822	40		
	30	9105	415	6425	250	2471	660	.660 4479	1 821	30		
	40	9520	416	6175	250	3132	661	.660 2657	1 822	20		
	50	9936	415	5925	251	3793	661	.660 0836	1 821	10		
			416						1 820			
4	0	0.515 0351		0.856 5674		0.602 4454		1.659 9016		0	56	
	10	0766	415	5424	250	5114	660	.659 7195	1 821	50		
	20	1181	416	5174	250	5775	661	.659 5375	1 820	40		
	30	1597	415	4924	250	6436	661	.659 3555	1 820	30		
	40	2012	416	4674	251	7097	661	.659 1736	1 819	20		
	50	2427	415	4423	250	7758	661	.658 9916	1 820	10		
			416						1 819			
5	0	0.515 2842		0.856 4173		0.602 8419		1.658 8097		0	55	
	10	3257	415	3923	250	9080	661	.658 6279	1 818	50		
	20	3673	416	3672	251	9741	661	.658 4460	1 819	40		
	30	4088	415	3422	250	0402	661	.658 2642	1 818	30		
	40	4503	416	3172	251	1063	661	.658 0824	1 817	20		
	50	4918	415	2921	250	1724	662	.657 9007	1 818	10		
			416						1 818			
6	0	0.515 6333		0.856 2671		0.603 2386		1.657 7189		0	54	
	10	5748	415	2420	251	3047	661	.657 5372	1 817	50		
	20	6164	416	2170	250	3708	661	.657 3556	1 816	40		
	30	6579	415	1919	251	4370	662	.657 1739	1 817	30		
	40	6994	416	1669	250	5031	661	.656 9923	1 816	20		
	50	7409	415	1418	251	5692	661	.656 8108	1 815	10		
			416				662		1 816			
7	0	0.515 7824		0.856 1168		0.603 6354		1.656 6292		0	53	
	10	8239	415	0917	251	7015	661	.656 4477	1 815	50		
	20	8654	416	0667	250	7677	662	.656 2662	1 816	40		
	30	9069	415	0416	251	8338	661	.656 0847	1 815	30		
	40	9484	416	0166	250	9000	662	.655 9033	1 814	20		
	50	9899	415	0.855 9915	251	9662	662	.655 7219	1 814	10		
			416						1 815			
8	0	0.517 0314		0.855 9664		0.604 0323		1.655 5405		0	52	
	10	0729	415	9414	250	0985	662	.655 3592	1 813	50		
	20	1144	416	9163	251	1647	662	.655 1779	1 813	40		
	30	1559	415	8912	251	2309	662	.654 9966	1 813	30		
	40	1974	416	8662	250	2970	661	.654 8153	1 813	20		
	50	2389	415	8411	251	3632	662	.654 6341	1 812	10		
			416						1 812			
9	0	0.517 2804		0.855 8160		0.604 4294		1.654 4529		0	51	
	10	3219	415	7909	251	4956	662	.654 2717	1 812	50		
	20	3633	416	7658	251	5618	662	.654 0906	1 811	40		
	30	4048	415	7408	251	6280	662	.653 9095	1 811	30		
	40	4463	416	7157	251	6942	662	.653 7284	1 811	20		
	50	4878	415	6906	251	7604	662	.653 5473	1 810	10		
			416						1 810			
10	0	0.517 5293		0.855 6655		0.604 8266		1.653 3663		0	50	
		Cosine	Diff.	Sine	Diff.	Cotangent	Diff.	Tangent	Diff.	"	'	Proportional Parts

58° 50'

31° 10'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
10	0	0.517 5293		0.855 6655		0.604 8266		1.653 3663		0	50	
	10	5708	415	6404	251	8929	663	.653 1853	1 810	50		Sine
	20	6123	415	6153	251	9591	662	.653 0043	1 810	40		414 415
	30	6537	414	5902	251	0.605 0253	662	.652 8234	1 809	30		1 41 4 41 5
	40	6952	415	5651	251	0915	662	.652 6425	1 809	20		2 82 8 83 0
	50	7367	415	5400	251	1578	663	.652 4616	1 809	10		3 124 2 124 5
			415				662		1 808			4 165 6 166 0
11	0	0 517 7782		0.855 5149		0.605 2240		1.652 2808		0	49	
	10	8196	414	4898	251	2903	663	.652 0999	1 809	50		5 207 0 207 5
	20	8611	415	4647	251	3565	662	.651 9191	1 808	40		6 248 4 249 0
	30	9026	415	4396	251	4228	663	.651 7384	1 807	30		7 289 8 290 5
	40	9441	415	4145	251	4890	662	.651 5576	1 808	20		8 331 2 332 0
	50	9855	414	3894	251	5553	663	.651 3769	1 807	10		9 372 6 373 5
			415				662		1 806			
12	0	0.518 0270		0.855 3643		0.605 6215		1.651 1963		0	48	
	10	0685	415	3391	252	6878	663	.651 0156	1 807	50		Cosine
	20	1099	415	3140	251	7541	663	.650 8350	1 806	40		251 252 253
	30	1514	415	2889	251	8203	662	.650 6544	1 806	30		1 25 1 25 2 25 3
	40	1929	414	2638	251	8866	663	.650 4738	1 806	20		2 50 2 50 4 50 6
	50	2343	415	2387	252	9529	663	.650 2933	1 805	10		3 75 3 75 6 75 9
							663		1 805			4 100 1 100 8 101 2
13	0	0.518 2758		0.855 2135		0.606 0192		1.650 1128		0	47	
	10	3173	415	1884	251	0855	663	.649 9323	1 805	50		5 125 5 126 0 126 5
	20	3587	414	1633	251	1518	663	.649 7519	1 804	40		6 150 6 151 2 151 8
	30	4002	415	1381	252	2181	663	.649 5715	1 804	30		7 175 7 176 4 177 1
	40	4416	414	1130	251	2844	663	.649 3911	1 804	20		8 200 8 201 6 202 4
	50	4831	415	0879	252	3507	663	.649 2107	1 804	10		9 225 9 226 8 227 7
							663		1 803			
14	0	0.518 5246		0.855 0627		0.606 4170		1.649 0304		0	46	
	10	5660	414	0376	251	4833	663	.648 8501	1 803	50		Tangent
	20	6075	415	0125	251	5496	663	.648 6698	1 803	40		662 663
	30	6489	414	0.854 9873	252	6159	663	.648 4896	1 802	30		1 66 2 66 3
	40	6904	415	9622	251	6822	663	.648 3093	1 803	20		2 132 4 132 6
	50	7318	414	9370	252	7486	664	.648 1292	1 801	10		3 198 6 198 9
			415				663		1 802			4 264 8 265 2
15	0	0.518 7733		0.854 9119		0.606 8149		1.647 9490		0	45	
	10	8147	414	8867	252	8812	663	.647 7689	1 801	50		5 331 0 331 5
	20	8562	415	8616	251	9476	664	.647 5888	1 801	40		6 397 2 397 8
	30	8976	414	8364	252	0.607 0139	663	.647 4087	1 801	30		7 463 4 464 1
	40	9390	415	8113	252	0803	663	.647 2287	1 801	20		8 529 6 530 4
	50	9805	414	7861	252	1466	664	.647 0486	1 799	10		9 595 8 596 7
												664 665
16	0	0.519 0219		0.854 7609		0.607 2130		1.646 8687		0	44	
	10	0634	415	7358	251	2703	663	.646 6887	1 800	50		1 66 4 66 5
	20	1048	414	7106	252	3457	664	.646 5088	1 799	40		2 132 8 133 0
	30	1462	415	6854	251	4121	664	.646 3289	1 799	30		3 199 2 199 5
	40	1877	414	6603	252	4784	663	.646 1490	1 799	20		4 265 6 266 0
	50	2291	414	6351	252	5448	664	.645 9692	1 798	10		5 332 0 332 5
									1 799			6 398 4 399 0
17	0	0.519 2705		0.854 6099		0.607 6112		1.645 7893		0	43	
	10	3120	415	5847	252	6776	664	.645 6096	1 798	50		7 464 8 465 5
	20	3534	414	5596	252	7439	663	.645 4298	1 797	40		8 531 2 532 0
	30	3948	415	5344	252	8103	664	.645 2501	1 797	30		9 597 6 598 5
	40	4363	415	5092	252	8767	664	.645 0704	1 797	20		
	50	4777	414	4840	252	9431	664	.644 8907	1 796	10		Cotangent
												1810 1800
18	0	0.519 5191		0.854 4588		0.608 0095		1.644 7111		0	42	
	10	5605	414	4336	252	0759	664	.644 5314	1 797	50		1 181 0 180 0
	20	6020	415	4085	251	1423	664	.644 3519	1 795	40		2 362 0 360 0
	30	6434	414	3833	252	2088	665	.644 1723	1 796	30		3 543 0 540 0
	40	6848	415	3581	252	2752	664	.643 9928	1 795	20		4 724 0 720 0
	50	7262	414	3329	252	3416	664	.643 8133	1 795	10		5 905 0 900 0
												6 1086 0 1080 0
19	0	0.519 7676		0.854 3077		0.608 4080		1.643 6338		0	41	
	10	8091	415	2825	252	4745	665	.643 4544	1 794	50		7 1267 0 1260 0
	20	8505	414	2573	252	5409	664	.643 2750	1 794	40		8 1448 0 1440 0
	30	8919	415	2321	252	6073	665	.643 0956	1 794	30		9 1629 0 1620 0
	40	9333	414	2069	252	6738	664	.642 9162	1 793	20		1790
	50	9747	414	1817	253	7402	665	.642 7369	1 793	10		1 179 0
												2 358 0
20	0	0.520 0161		0.854 1564		0.608 8067		1.642 5576		0	40	
												3 537 0
												4 716 0
												5 895 0
												6 1074 0
												7 1253 0
												8 1432 0
												9 1611 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

58° 40'

31° 20'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
20	0	0.520 0161		0.854 1584		0.608 8067		1.642 5576		0	40	
	10	0575	414	1312	252	8731	664	642 3783	1 793	50		Sine
	20	0989	414	1060	252	9396	665	.642 1991	1 792	40		413 414 415
	30	1404	415	0808	252	0 609 0060	664	.642 0199	1 792	30		1 41 3 41 4 41 5
	40	1818	414	0556	252	0725	665	.641 8407	1 792	20		2 82 6 82 8 83 0
	50	2232	414	0304	252	1390	665	.641 6615	1 792	10		3 123 9 124 2 124 5
			414		253		664		1 791			4 165 2 165 6 166 0
21	0	0.520 2646		0.854 0051		0.609 2054		1.641 4824		0	39	
	10	3060	414	0 853 9799	252	2719	665	.641 3033	1 791	50		5 206 5 207 0 207 5
	20	3474	414		252	3384	665	.641 1242	1 791	40		6 247 8 248 4 249 0
	30	3888	414		252	4049	665	.640 9452	1 790	30		7 289 1 289 8 290 5
	40	4302	414		252	4714	665	.640 7662	1 790	20		8 330 4 331 2 332 0
	50	4716	414		252	5379	665	.640 5872	1 790	10		9 371 7 372 6 373 5
			414		252		664		1 790			
22	0	0.520 5130		0.853 8538		0.609 6043		1.640 4082		0	38	
	10	5544	414	8285	253	6708	665	.640 2293	1 789	50		Cosine
	20	5958	414	8033	252	7374	666	.640 0504	1 789	40		252 253 254
	30	6372	413	7780	252	8039	665	.639 8715	1 788	30		1 25 2 25 3 25 4
	40	6785	414	7528	252	8704	665	.639 6927	1 788	20		2 50 4 50 6 50 8
	50	7199	414	7276	252	9369	665	.639 5139	1 788	10		3 75 6 75 9 76 2
			414		253		665		1 788			4 100 8 101 2 101 6
23	0	0.520 7613		0.853 7023		0.610 0034		1.639 3351		0	37	
	10	8027	414	6771	252	0699	665	.639 1563	1 788	50		5 126 0 126 5 127 0
	20	8441	414	6518	253	1365	666	.638 9776	1 787	40		6 151 2 151 5 152 4
	30	8855	414	6266	252	2030	665	.638 7989	1 787	30		7 170 4 177 1 177 8
	40	9269	414	6013	253	2695	665	.638 6202	1 787	20		8 201 6 202 4 203 2
	50	9682	413	5761	252	3361	666	.638 4416	1 786	10		9 226 8 227 7 228 6
			414		253		665		1 786			
24	0	0.521 0096		0.853 5508		0.610 4026		1.638 2630		0	36	
	10	0510	414	5255	253	4692	666	.638 0844	1 786	50		Tangent
	20	0924	414	5003	252	5357	665	.637 9058	1 786	40		664 665
	30	1338	413	4750	253	6023	666	.637 7273	1 785	30		1 66 4 66 5
	40	1751	414	4497	252	6688	665	.637 5488	1 785	20		2 132 8 133 0
	50	2165	414	4245	252	7354	666	.637 3703	1 785	10		3 199 2 199 5
			414		253		665		1 784			4 265 6 266 0
25	0	0.521 2679		0.853 3992		0.610 8019		1.637 1919		0	35	
	10	2993	414	3739	253	8685	666	.637 0135	1 784	50		5 332 0 332 5
	20	3406	413	3487	252	9351	666	.636 8351	1 784	40		6 398 4 399 0
	30	3820	414	3234	253		666	.636 6567	1 784	30		7 464 8 465 5
	40	4234	414	2981	253	0683	665	.636 4784	1 783	20		8 531 2 532 0
	50	4648	413	2728	253	1348	666	.636 3001	1 783	10		9 597 6 598 5
			413		253		666		1 783			
26	0	0.521 5061		0.853 2475		0.611 2014		1.636 1218		0	34	
	10	5475	414	2223	252	2680	666	.635 9436	1 782	50		666 667
	20	5889	414	1970	253	3346	666	.635 7654	1 782	40		1 66 6 66 7
	30	6302	413	1717	253	4012	666	.635 5872	1 782	30		2 133 2 133 4
	40	6716	414	1464	253	4678	666	.635 4090	1 782	20		3 199 8 200 1
	50	7129	414	1211	253	5344	667	.635 2309	1 781	10		4 266 4 266 8
			414		253		667		1 781			5 333 0 333 5
27	0	0.521 7543		0.853 0968		0.611 6011		1.635 0528		0	33	
	10	7957	414	0705	253	6677	666	.634 8747	1 781	50		6 399 6 400 2
	20	8370	413	0452	253	7343	666	.634 6966	1 781	40		7 466 2 466 9
	30	8784	414	0199	253	8009	667	.634 5186	1 780	30		8 532 8 533 6
	40	9197	413	0.852 9946	253	8676	666	.634 3406	1 779	20		9 599 4 600 3
	50	9611	414	9693	253	9342	666	.634 1627	1 780	10		
			413		253		666		1 780			
28	0	0.522 0024		0.852 9440		0.612 0008		1.633 9847		0	32	
	10	0438	414	9187	253	0675	667	.633 8068	1 779	50		Cotangent
	20	0851	413	8934	253	1341	666	.633 6289	1 779	40		1790 1780
	30	1265	414	8681	253	2008	667	.633 4511	1 778	30		1 179 0 178 0
	40	1678	413	8428	253	2674	666	.633 2733	1 778	20		2 358 0 356 0
	50	2092	413	8174	253	3341	667	.633 0955	1 778	10		3 537 0 534 0
			413		253		666		1 778			4 710 0 712 0
29	0	0.522 2505		0.852 7921		0.612 4007		1.632 9177		0	31	
	10	2919	414	7668	253	4674	667	.632 7400	1 777	50		5 895 0 890 0
	20	3332	413	7415	254	5341	666	.632 5622	1 778	40		6 1074 0 1068 0
	30	3745	414	7161	253	6007	666	.632 3846	1 777	30		7 1253 0 1246 0
	40	4159	413	6908	253	6674	667	.632 2069	1 777	20		8 1432 0 1424 0
	50	4572	414	6655	253	7341	667	.632 0293	1 776	10		9 1611 0 1602 0
			414		253		667		1 776			
30	0	0.522 4986		0.852 6402		0.612 8008		1.631 8517		0	30	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

58° 30'

31° 30'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
30	0	0.522 4986		0.852 6402		0.612 8008		1.631 8517		0	30	
	10	5399	413	6148	254	8675	667	631 6741	1 776	50		Sine
	20	5812	414	5895	253	9342	667	.631 4966	1 775	40		412 413 414
	30	6226	414	5642	253	0.613 0009	667	.631 3191	1 775	30		1 41 2 41 3 41 4
	40	6639	413	5388	254	0676	667	.631 1416	1 775	20		2 82 4 82 6 82 8
	50	7052	414	5135	254	1343	667	.630 9641	1 774	10		3 123 6 123 9 124 2
31	0	0.522 7466		0.852 4881		0.613 2010		1.630 7867		0	29	4 164 8 165 2 165 6
	10	7879	413	4628	253	2677	667	.630 6093	1 774	50		5 206 0 206 5 207 0
	20	8292	413	4374	254	3344	667	.630 4319	1 774	40		6 247 2 247 8 248 4
	30	8705	413	4121	253	4011	667	.630 2546	1 773	30		7 288 4 289 1 289 8
	40	9119	414	3867	253	4679	668	.630 0772	1 772	20		8 329 6 330 4 331 2
	50	9532	413	3614	254	5346	667	.629 9000	1 773	10		9 370 8 371 7 372 6
32	0	0.522 9945		0.852 3360		0.613 6013		1.629 7227		0	28	Cosine
	10	0.523 0358	413	3107	253	6681	668	.629 5455	1 772	50		253 254 255
	20	0772	414	2853	253	7348	667	.629 3683	1 772	40		1 25 3 25 4 25 5
	30	1185	413	2600	254	8015	667	.629 1911	1 772	30		2 50 6 50 8 51 0
	40	1598	413	2346	254	8683	668	.629 0139	1 772	20		3 75 9 76 2 76 5
	50	2011	413	2092	253	9350	667	.628 8368	1 771	10		4 101 2 101 6 102 0
33	0	0.523 2424		0.852 1839		0.614 0018		1.628 6597		0	27	5 126 5 127 0 127 5
	10	2837	413	1585	254	0686	668	.628 4826	1 771	50		6 151 8 152 4 153 0
	20	3251	414	1331	254	1353	667	.628 3056	1 770	40		7 177 1 177 8 178 5
	30	3664	413	1078	253	2021	668	.628 1286	1 770	30		8 202 4 203 2 204 0
	40	4077	413	0824	254	2689	668	.627 9516	1 770	20		9 227 7 228 6 229 5
	50	4490	413	0570	254	3356	667	.627 7747	1 769	10		Tangent
34	0	0.523 4903		0.852 0316		0.614 4024		1.627 5977		0	26	667 668
	10	5316	413	0063	253	4692	668	.627 4208	1 769	50		1 66 7 66 8
	20	5729	413	0.851 9809	254	5360	668	.627 2440	1 768	40		2 133 4 133 6
	30	6142	413	9555	254	6028	668	.627 0671	1 769	30		3 200 1 200 4
	40	6555	413	9301	254	6696	668	.626 8903	1 768	20		4 266 8 267 2
	50	6968	413	9047	254	7364	668	.626 7135	1 767	10		5 333 5 334 0
35	0	0.523 7381		0.851 8793		0.614 8032		1.626 5368		0	25	6 400 2 400 8
	10	7794	413	8539	254	8700	668	.626 3600	1 768	50		7 466 9 467 6
	20	8207	413	8285	254	9368	668	.626 1833	1 767	40		8 533 6 534 4
	30	8620	413	8031	254	0.615 0036	668	.625 0067	1 766	30		9 600 3 601 2
	40	9033	413	7777	254	0705	669	.625 8300	1 767	20		669 670
	50	9446	413	7523	254	1373	668	.625 6534	1 766	10		1 66 9 67 0
36	0	0.523 9869		0.851 7269		0.615 2041		1.625 4768		0	24	2 133 8 134 0
	10	0.524 0272	413	7015	254	2709	668	.625 3002	1 766	50		3 200 7 201 0
	20	0685	413	6761	254	3378	668	.625 1237	1 765	40		4 267 6 268 0
	30	1098	413	6507	254	4046	668	.624 9472	1 765	30		5 334 5 335 0
	40	1511	413	6253	254	4715	669	.624 7707	1 765	20		6 401 4 402 0
	50	1924	412	5999	254	5383	668	.624 5943	1 764	10		7 468 3 469 0
37	0	0.524 2336		0.851 5745		0.615 6052		1.624 4178		0	23	8 535 2 536 0
	10	2749	413	5491	254	6720	668	.624 2414	1 764	50		9 602.1 603 0
	20	3162	413	5236	254	7389	668	.624 0651	1 763	40		Cotangent
	30	3575	413	4982	254	8057	668	.623 8887	1 764	30		1780 1770
	40	3988	413	4728	254	8726	669	.623 7124	1 763	20		1 178 0 177 0
	50	4401	412	4474	255	9395	669	.623 5361	1 763	10		2 356 0 354 0
38	0	0.524 4813		0.851 4219		0.616 0064		1.623 3599		0	22	3 534 0 531 0
	10	5226	413	3965	254	0732	668	.623 1836	1 763	50		4 712 0 708 0
	20	5639	413	3711	254	1401	669	.623 0074	1 762	40		5 890 0 885 0
	30	6052	413	3457	254	2070	669	.622 8313	1 761	30		6 1068 0 1062 0
	40	6464	412	3202	255	2739	669	.622 6551	1 762	20		7 1246 0 1239 0
	50	6877	413	2948	255	3408	669	.622 4790	1 761	10		8 1424 0 1416 0
39	0	0.524 7290		0.851 2693		0.616 4077		1.622 3029		0	21	9 1602 0 1593 0
	10	7702	412	2439	254	4746	669	.622 1268	1 761	50		1760
	20	8115	413	2185	254	5415	669	.621 9508	1 760	40		1 176 0
	30	8528	413	1930	254	6084	669	.621 7748	1 760	30		2 352 0
	40	8941	412	1676	255	6753	669	.621 5988	1 760	20		3 528 0
	50	9353	413	1421	254	7423	670	.621 4229	1 759	10		4 704 0
40	0	0.524 9766		0.851 1167		0.616 8092		1.621 2469		0	20	5 880 0
												6 1056 0
												7 1232 0
												8 1408 0
												9 1584 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff.	"	'	Proportional Parts

58° 20'

31° 40'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
40	0	0.524 9766		0.851 1187		0.616 8092		1.621 2469		0	20	
	10	0 525 0178	412	0912	255	8761	669	.621 0710	1 759	50		Sine
	20	0591	413	0658	254	9430	669	.620 8952	1 758	40		412 413
	30	1004	413	0403	255	0.617 0100	670	.620 7193	1 759	30		1 41 2 41 3
	40	1416	412	0149	254	0769	669	.620 5435	1 758	20		2 82 4 82 6
	50	1829	413	0 850 9894	255	1439	670	.620 3677	1 758	10		3 123 6 123 9
			412		255		669		1 757			4 164 8 165 2
41	0	0.525 2241		0.850 9639		0.617 2108		1.620 1920		0	19	
	10	2654	413	9385	254	2778	670	.620 0162	1 758	50		5 206 0 206 5
	20	3066	412	9130	255	3447	669	.619 8405	1 757	40		6 247 2 247 8
	30	3479	413	8875	255	4117	670	.619 6648	1 757	30		7 288 4 289 1
	40	3892	413	8621	254	4786	669	.619 4892	1 756	20		8 329 6 330 4
	50	4304	412	8366	255	5456	670	.619 3136	1 756	10		9 370 8 371 7
			413		255				1 756			
42	0	0.525 4717		0.850 8111		0.617 6126		1.619 1380		0	18	
	10	5129	412	7856	255	6796	670	.618 9624	1 756	50		Cosine
	20	5541	412	7602	254	7465	669	.618 7869	1 755	40		254 255 256
	30	5954	413	7347	255	8135	670	.618 6114	1 755	30		1 25 4 25 5 25 6
	40	6366	412	7092	255	8805	670	.618 4359	1 755	20		2 50 8 51 0 51 2
	50	6779	413	6837	255	9475	670	.618 2604	1 755	10		3 76 2 76 5 76 8
			412		255				1 754			4 101 6 102 0 102 4
43	0	0.525 7191		0.850 6582		0.618 0145		1.618 0850		0	17	
	10	7604	413	6327	255	0815	670	.617 9096	1 754	50		5 127 0 127 5 128 0
	20	8016	412	6072	255	1485	670	.617 7342	1 754	40		6 152 4 153 0 153 6
	30	8428	412	5817	255	2155	670	.617 5589	1 753	30		7 177 8 178 5 179 2
	40	8841	413	5563	254	2825	670	.617 3836	1 753	20		8 203 2 204 0 204 8
	50	9253	412	5308	255	3495	670	.617 2083	1 753	10		9 228 6 229 5 230 4
			412		255		671		1 753			
44	0	0.525 9665		0.850 5063		0.618 4166		1.617 0330		0	16	
	10	0.526 0078	413	4798	255	4836	670	.616 8578	1 752	50		Tangent
	20	0490	412	4543	255	5506	670	.616 6826	1 752	40		669 670
	30	0902	412	4288	255	6177	671	.616 5074	1 752	30		1 66 9 67 0
	40	1315	413	4032	256	6847	670	.616 3322	1 752	20		2 133 8 134 0
	50	1727	412	3777	255	7517	670	.616 1571	1 751	10		3 200 7 201 0
			412		255		671		1 751			4 267 6 268 0
45	0	0.526 2139		0.850 3522		0.618 8188		1.615 9820		0	15	
	10	2551	412	3267	255	8858	670	.615 8069	1 751	50		5 334 5 335 0
	20	2964	413	3012	255	9529	671	.615 6319	1 750	40		6 401 4 402 0
	30	3376	412	2757	255	0 619 0199	670	.615 4569	1 750	30		7 468 3 469 0
	40	3788	412	2502	256	0870	671	.615 2819	1 750	20		8 535 2 536 0
	50	4200	413	2246	255	1541	670	.615 1069	1 749	10		9 602 1 603 0
			412		255							671 672
46	0	0.526 4613		0.850 1991		0.619 2211		1.614 9320		0	14	
	10	5025	412	1736	255	2882	671	.614 7571	1 749	50		1 67 1 67 2
	20	5437	412	1481	255	3553	671	.614 5822	1 749	40		2 134 2 134 4
	30	5849	412	1225	256	4224	671	.614 4073	1 749	30		3 201 3 201 6
	40	6261	412	0970	255	4894	670	.614 2325	1 748	20		4 268 4 268 8
	50	6673	412	0715	256	5565	671	.614 0577	1 748	10		5 335 5 336 0
			412		256		671		1 748			6 402 6 403 2
47	0	0.526 7085		0.850 0459		0.619 6236		1.613 8829		0	13	
	10	7498	413	0204	255	6907	671	.613 7082	1 747	50		7 469 7 470 4
	20	7910	412	0.849 9949	256	7578	671	.613 5335	1 747	40		8 536 8 537 6
	30	8322	412	9693	256	8249	671	.613 3588	1 747	30		9 603 9 604 8
	40	8734	412	9438	255	8920	672	.613 1841	1 746	20		
	50	9146	412	9182	255	9592	671	.613 0095	1 746	10		Cotangent
			412		255							1760 1750
48	0	0.526 9558		0.849 8927		0.620 0263		1.612 8349		0	12	
	10	9970	412	8671	256	0934	671	.612 6603	1 746	50		1 176 0 175 0
	20	0 527 0382	412	8416	255	1605	671	.612 4858	1 745	40		2 352 0 350 0
	30	0794	412	8160	256	2276	671	.612 3112	1 745	30		3 528 0 525 0
	40	1206	412	7905	255	2948	672	.612 1367	1 745	20		4 704 0 700 0
	50	1618	412	7649	255	3619	671	.611 9623	1 745	10		5 880 0 875 0
			412		255		672		1 745			6 1056 0 1050 0
49	0	0.527 2030		0.849 7394		0.620 4291		1.611 7878		0	11	
	10	2442	412	7138	256	4962	671	.611 6134	1 744	50		7 1232 0 1225 0
	20	2854	412	6882	255	5634	672	.611 4390	1 744	40		8 1408 0 1400 0
	30	3266	412	6627	256	6305	671	.611 2647	1 744	30		9 1584 0 1575 0
	40	3678	412	6371	256	6977	672	.611 0903	1 743	20		
	50	4090	412	6115	256	7648	671	.610 9160	1 743	10		1740
			412		255		672		1 743			1 174 0
50	0	0.527 4502		0.849 5860		0.620 8320		1.610 7417		0	10	
												2 348 0
												3 522 0
												4 696 0
												5 870 0
												6 1044 0
												7 1218 0
												8 1392 0
												9 1566 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

58° 10'

31° 50'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
50	0	0.527 4502		0.849 5860		0.620 8320		1.610 7417		0	10	
	10	4913	411	5604	256	8992	672	610 5675	1 742	50		Sine
	20	5325	412	5348	256	9663	671	.610 3933	1 742	40		411 412
	30	5737	412	5093	255	0.621 0335	672	.610 2191	1 742	30		1 41 1 41 2
	40	6149	412	4837	256	1007	672	.610 0449	1 742	20		2 82 2 82 4
	50	6561	412	4581	256	1679	672	.609 8708	1 741	10		3 123 3 123 6
			412		256		672		1 742			4 164 4 164 8
51	0	0.527 6973		0.849 4325		0.621 2351		1.609 6966		0	9	
	10	7384	411	4069	256	3023	672	.609 5225	1 741	50		5 205 5 206 0
	20	7796	412	3813	256	3695	672	.609 3485	1 740	40		6 246 6 247 2
	30	8208	412	3558	255	4367	672	.609 1745	1 740	30		7 287 7 288 4
	40	8620	412	3302	256	5039	672	.609 0004	1 741	20		8 328 8 329 6
	50	9032	411	3046	256	5711	672	.608 8265	1 739	10		9 369 9 370 8
			411		256		672		1 740			
52	0	0.527 9443		0.849 2790		0.621 6383		1.608 6525		0	8	
	10	9855	412	2534	256	7055	672	.608 4786	1 739	50		Cosine
	20	0.528 0267	412	2278	256	7727	672	.608 3047	1 739	40		255 256 257
	30	0679	411	2022	256	8400	672	.608 1308	1 738	30		1 25 5 25 6 25 7
	40	1090	412	1766	256	9072	672	.607 9570	1 738	20		2 51 0 51 2 51 4
	50	1502	412	1510	256	9744	672	.607 7831	1 739	10		3 76 5 76 8 77 1
			412		256		673		1 737			4 102 0 102 4 102 8
53	0	0.528 1914		0.849 1254		0.622 0417		1.607 6094		0	7	
	10	2325	411	0998	256	1089	672	.607 4356	1 738	50		5 127 5 128 0 128 5
	20	2737	412	0741	257	1762	673	.607 2619	1 737	40		6 153 0 153 6 154 2
	30	3149	412	0485	256	2434	672	.607 0882	1 737	30		7 178 5 179 2 179 9
	40	3560	411	0229	256	3107	673	.606 9145	1 737	20		8 204 0 204 8 205 6
	50	3972	411	0 848 9973	256	3779	672	.606 7408	1 737	10		9 229 5 230 4 231 3
			411		256		673		1 736			
54	0	0.528 4383		0.848 9717		0.622 4452		1.606 5672		0	6	
	10	4795	412	9461	256	5124	672	.606 3936	1 736	50		Tangent
	20	5207	412	9204	257	5797	673	.606 2200	1 736	40		671 672
	30	5618	411	8948	256	6470	673	.606 0465	1 735	30		1 67 1 67 2
	40	6030	412	8692	256	7143	673	.605 8729	1 735	20		2 134 2 134 4
	50	6441	411	8436	256	7816	673	.605 6994	1 735	10		3 201 3 201 6
			411		257		672		1 734			4 268 4 268 8
55	0	0.528 6853		0.848 8179		0.622 8488		1.605 5260		0	5	
	10	7264	411	7923	256	9161	673	.605 3525	1 735	50		5 335 5 336 0
	20	7676	412	7667	256	9834	673	.605 1791	1 734	40		6 402 6 403 2
	30	8087	411	7410	257	0 623 0507	673	.605 0057	1 734	30		7 469 7 470 4
	40	8499	412	7154	256	1180	673	.604 8324	1 733	20		8 536 8 537 6
	50	8910	411	6898	256	1853	673	.604 6591	1 733	10		9 603 9 604 8
			412		257		674		1 731			
56	0	0.528 9322		0.848 6641		0.623 2527		1.604 4868		0	4	
	10	9733	411	6385	256	3200	673	.604 3125	1 733	50		673 674 675
	20	0 529 0144	411	6128	257	3873	673	.604 1392	1 733	40		1 67 3 67 4 67 5
	30	0556	412	5872	256	4546	673	.603 9660	1 732	30		2 134 6 134 8 135 0
	40	0967	411	5615	257	5219	673	.603 7928	1 732	20		3 201 9 202 2 202 5
	50	1379	411	5359	256	5893	674	.603 6196	1 732	10		4 269 2 269 6 270 0
			411		257		673		1 731			5 336 5 337 0 337 5
57	0	0.529 1790		0.848 5102		0.623 6566		1.603 4465		0	3	
	10	2201	411	4846	256	7239	673	.603 2734	1 731	50		6 403 8 404 4 405 0
	20	2613	412	4589	257	7913	674	.603 1003	1 731	40		7 471 1 471 8 472 5
	30	3024	411	4332	256	8586	673	.602 9272	1 731	30		8 538 4 539 2 540 0
	40	3435	411	4076	256	9260	674	.602 7542	1 730	20		9 605 7 606 6 607 5
	50	3847	412	3819	257	9933	673	.602 5812	1 730	10		
			411		257		674		1 729			
58	0	0.529 4258		0.848 3562		0.624 0607		1.602 4082		0	2	
	10	4669	411	3306	256	1281	674	.602 2353	1 729	50		Cotangent
	20	5081	412	3049	257	1954	673	.602 0623	1 730	40		1740 1730
	30	5492	411	2792	256	2628	674	.601 8894	1 729	30		1 174 0 173 0
	40	5903	411	2536	257	3302	674	.601 7166	1 728	20		2 348 0 346 0
	50	6314	412	2279	256	3976	674	.601 5437	1 728	10		3 522 0 519 0
			412		257		674		1 727			4 696 0 692 0
59	0	0.529 6726		0.848 2022		0.624 4650		1.601 3709		0	1	
	10	7137	411	1765	257	5323	673	.601 1981	1 728	50		5 870 0 865 0
	20	7548	411	1508	257	5997	674	.601 0253	1 728	40		6 1044 0 1038 0
	30	7959	411	1252	256	6671	674	.600 8526	1 727	30		7 1218 0 1211 0
	40	8370	411	0995	257	7345	674	.600 6799	1 727	20		8 1392 0 1384 0
	50	8781	412	0738	257	8019	674	.600 5072	1 727	10		9 1566 0 1557 0
			412		257		675		1 727			1720
60	0	0.529 9193		0.848 0481		0.624 8694		1.600 3345		0	0	
												1 172 0
												2 344 0
												3 516 0
												4 688 0
												5 860 0
												6 1032 0
												7 1204 0
												8 1376 0
												9 1548 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

58° 0'

32° 0'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
0	0	0.529 9193		0.848 0481		0.624 8694		1.600 3345		0	60	
	10	9604	411	0224	257	9368	674	600 1619	1 726	50		Sine
	20	0.530 0015	411	0.847 9967	257	0.625 0042	674	.599 9893	1 726	40		410 411
	30	0426	411	0710	257	0716	674	.599 8167	1 726	30		1 41 0 41 1
	40	0837	411	9453	257	1390	674	.599 6442	1 725	20		2 82 0 82 2
	50	1248	411	9196	257	2065	675	.599 4716	1 726	10		3 123 0 123 3
							674		1 725			4 164 0 164 4
1	0	0.530 1669		0.847 8939		0.625 2739		1.599 2991		0	59	
	10	2070	411	8682	257	3413	674	.599 1267	1 724	50		5 205 0 205 5
	20	2481	411	8425	257	4088	675	.598 9542	1 725	40		6 246 0 246 6
	30	2892	411	8168	257	4762	674	.598 7818	1 724	30		7 287 0 287 7
	40	3303	411	7911	257	5437	675	.598 6094	1 724	20		8 328 0 328 8
	50	3714	411	7654	257	6111	674	.598 4370	1 723	10		9 369 0 369 9
							675					
2	0	0.530 4125		0.847 7397		0.625 6786		1.598 2647		0	58	
	10	4536	411	7139	258	7460	674	.598 0924	1 723	50		Cosine
	20	4947	411	6882	257	8135	675	.597 9201	1 723	40		257 258 259
	30	5358	411	6625	257	8810	675	.597 7479	1 723	30		1 25 7 25 8 25 9
	40	5769	411	6368	257	9485	675	.597 5756	1 723	20		2 51 4 51 6 51 8
	50	6180	411	6111	258	0.626 0159	674	.597 4034	1 722	10		3 77 1 77 7 77 7
							675		1 722			4 102 8 103 2 103 6
3	0	0.530 6591		0.847 5863		0.626 0834		1.597 2312		0	57	
	10	7002	411	5596	257	1509	675	.597 0591	1 721	50		5 128 5 129 0 129 5
	20	7413	411	5339	257	2184	675	.596 8870	1 721	40		6 154 2 154 8 155 4
	30	7824	411	5081	258	2859	675	.596 7149	1 721	30		7 179 0 180 6 181 3
	40	8235	411	4824	257	3534	675	.596 5428	1 721	20		8 205 6 206 4 207 2
	50	8646	411	4567	258	4209	675	.596 3708	1 720	10		9 231 3 232 2 233 1
									1 721			
4	0	0.530 9067		0.847 4309		0.626 4884		1.596 1987		0	56	
	10	9467	410	4052	257	5559	675	.596 0267	1 720	50		Tangent
	20	9878	411	3795	257	6234	675	.595 8548	1 719	40		674 675
	30	0.531 0289	411	3537	258	6910	676	.595 6828	1 720	30		1 67 4 67 5
	40	0700	411	3280	257	7585	675	.595 5109	1 719	20		2 134 8 135 0
	50	1111	410	3022	258	8260	675	.595 3390	1 719	10		3 202 2 202 5
									1 718			4 260 6 270 0
5	0	0.531 1521		0.847 2765		0.626 8935		1.595 1672		0	55	
	10	1932	411	2507	258	9611	676	.594 9954	1 718	50		5 337 0 337 5
	20	2343	411	2250	257	0.627 0286	675	.594 8235	1 719	40		6 404 4 405 0
	30	2754	410	1992	258	0962	676	.594 6518	1 717	30		7 471 8 472 5
	40	3164	411	1734	257	1637	676	.594 4800	1 717	20		8 539 2 540 0
	50	3575	411	1477	258	2313	675	.594 3083	1 717	10		9 606 6 607 5
6	0	0.531 3986		0.847 1219		0.627 2988		1.594 1366		0	54	
	10	4396	410	0962	257	3664	676	.593 9649	1 717	50		676 677
	20	4807	411	0704	258	4339	675	.593 7933	1 716	40		1 67 6 67 7
	30	5218	410	0446	258	5015	676	.593 6217	1 716	30		2 135 2 135 4
	40	5628	411	0189	257	5691	676	.593 4501	1 716	20		3 202 8 203 1
	50	6039	411	0.846 9931	258	6367	676	.593 2785	1 716	10		4 270 4 270 8
									1 715			5 338 0 338 5
7	0	0.531 6450		0.846 9673		0.627 7042		1.593 1070		0	53	
	10	6860	410	9415	258	7718	676	.592 9354	1 716	50		6 405 6 406 2
	20	7271	411	9158	257	8394	676	.592 7640	1 715	40		7 473 2 473 9
	30	7682	411	8900	258	9070	676	.592 5925	1 714	30		8 540 8 541 6
	40	8092	410	8642	258	9746	676	.592 4211	1 714	20		9 608 4 609 3
	50	8503	410	8384	258	0.628 0422	676	.592 2497	1 714	10		
8	0	0.531 8913		0.846 8126		0.628 1098		1.592 0783		0	52	
	10	9324	411	7868	258	1774	676	.591 9069	1 714	50		Cotangent
	20	9734	410	7610	258	2450	676	.591 7356	1 713	40		1730 1720
	30	0.532 0145	410	7353	257	3127	677	.591 5643	1 713	30		1 173 0 172 0
	40	0555	411	7095	258	3803	676	.591 3930	1 712	20		2 346 0 344 0
	50	0966	410	6837	258	4479	676	.591 2218	1 712	10		3 519 0 516 0
												4 692 0 688 0
9	0	0.532 1376		0.846 6579		0.628 5155		1.591 0505		0	51	
	10	1787	411	6321	258	5832	677	.590 8793	1 712	50		5 865 0 860 0
	20	2197	410	6063	258	6508	676	.590 7082	1 711	40		6 1038 0 1032 0
	30	2608	410	5805	258	7185	677	.590 5370	1 711	30		7 1211 0 1204 0
	40	3018	410	5547	258	7861	676	.590 3659	1 711	20		8 1384 0 1376 0
	50	3429	411	5288	259	8538	677	.590 1948	1 711	10		9 1537 0 1548 0
			410		258		676		1 710			
10	0	0.532 3839		0.846 6030		0.628 9214		1.590 0238		0	50	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

57° 50'

57° 40'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff.			Proportional Parts
10	0	0.532 3839		0.846 5030		0.628 9214		1.590 0238		0	50	
	10	4249	410	4772	258	9891	677	589 8527	1 711	50		Sine
	20	4660	411	4514	258	0.629 0567	676	589 6817	1 710	40		409 410 411
	30	5070	410	4256	258	1244	677	589 5107	1 710	30		1 40 9 41 0 41 1
	40	5480	410	3998	258	1921	677	589 3398	1 709	20		2 81 8 82 0 82 2
	50	5891	411	3740	258	2598	677	589 1688	1 710	10		3 122 7 123 0 123 3
			410		259		676		1 709			4 163 6 164 0 164 4
11	0	0.532 6301		0.846 3481		0.629 3274		1.588 9979		0	49	
	10	6711	410	3223	258	3951	677	588 8271	1 708	50		5 204 5 205 0 205 5
	20	7122	411	2965	258	4628	677	588 6562	1 709	40		6 245 4 246 0 246 6
	30	7532	410	2707	258	5305	677	588 4854	1 708	30		7 286 3 287 0 287 7
	40	7942	410	2448	259	5982	677	588 3146	1 708	20		8 327 2 328 0 328 8
	50	8353	411	2190	258	6659	677	588 1438	1 707	10		9 368 1 369 0 369 9
			410		258		677		1 707			
12	0	0.532 8763		0.846 1932		0.629 7336		1.587 9731		0	48	
	10	9173	410	1673	259	8013	677	587 8023	1 708	50		Cosine
	20	9583	410	1415	258	8690	677	587 6316	1 707	40		258 259 260
	30	9993	410	1157	258	9367	677	587 4610	1 706	30		1 25 8 25 9 26 0
	40	0.533 0404	411	0898	259	0.630 0045	678	587 2903	1 707	20		2 51 6 51 8 52 0
	50	0814	410	0640	258	0722	677	587 1197	1 706	10		3 77 4 77 7 78 0
			410		259		677		1 706			4 103 2 103 6 104 0
13	0	0.533 1224		0.846 0381		0.630 1399		1.586 9491		0	47	
	10	1634	410	0123	258	2077	678	586 7786	1 705	50		5 129 0 129 5 130 0
	20	2044	410	0.845 9864	258	2754	677	586 6080	1 706	40		6 154 8 155 4 156 0
	30	2454	410	9606	258	3431	677	586 4375	1 705	30		7 180 6 181 3 182 0
	40	2865	411	9347	259	4109	678	586 2670	1 705	20		8 206 4 207 2 208 0
	50	3275	410	9089	258	4786	677	586 0966	1 704	10		9 232 2 233 1 234 0
			410		259		678		1 705			
14	0	0.533 3686		0.845 8830		0.630 5464		1.585 9261		0	46	
	10	4095	410	8571	259	6142	678	585 7557	1 704	50		Tangent
	20	4505	410	8313	258	6819	677	585 5853	1 704	40		676 677
	30	4915	410	8054	259	7497	678	585 4150	1 703	30		1 67 6 67 7
	40	5325	410	7796	258	8175	678	585 2447	1 703	20		2 135 2 135 4
	50	5735	410	7537	259	8852	677	585 0744	1 703	10		3 202 8 203 1
			410		259		678		1 703			4 270 4 270 8
15	0	0.533 6145		0.845 7278		0.630 9530		1.584 9041		0	45	
	10	6555	410	7020	258	0.631 0208	678	584 7338	1 703	50		5 338 0 338 5
	20	6965	410	6761	259	0886	678	584 5636	1 702	40		6 405 6 406 2
	30	7375	410	6502	259	1564	678	584 3934	1 702	30		7 473 2 473 9
	40	7785	410	6243	259	2242	678	584 2232	1 701	20		8 540 8 541 6
	50	8195	410	5984	258	2920	678	584 0531	1 701	10		9 605 4 606 3
			410		258		678		1 701			0 609 3
16	0	0.533 8606		0.845 6726		0.631 3598		1.583 8830		0	44	
	10	9015	410	5467	259	4276	678	583 7129	1 701	50		678 679
	20	9425	410	5208	259	4954	678	583 5428	1 701	40		1 67 8 67 9
	30	9835	410	4949	259	5632	678	583 3728	1 700	30		2 135 6 135 8
	40	0.534 0245	410	4690	259	6310	678	583 2028	1 700	20		3 203 4 203 7
	50	0655	410	4431	259	6989	679	583 0328	1 700	10		4 271 2 271 6
			410		259		678		1 700			5 339 0 339 5
17	0	0.534 1066		0.845 4172		0.631 7667		1.582 8628		0	43	
	10	1474	409	3913	259	8345	678	582 6929	1 699	50		6 406 8 407 4
	20	1884	410	3654	259	9024	679	582 5230	1 699	40		7 474 6 475 3
	30	2294	410	3395	259	9702	678	582 3531	1 699	30		8 542 4 543 2
	40	2704	410	3136	259	0.632 0381	679	582 1832	1 698	20		9 610 2 611 1
	50	3114	409	2877	259	1059	679	582 0134	1 698	10		
					259		679		1 698			
18	0	0.534 3523		0.845 2618		0.632 1738		1.581 8436		0	42	
	10	3933	410	2359	259	2416	678	581 6738	1 698	50		Cotangent
	20	4343	410	2100	259	3095	679	581 5040	1 698	40		1710 1700
	30	4753	410	1841	259	3773	678	581 3343	1 699	30		1 171 0 170 0
	40	5163	410	1582	259	4452	679	581 1646	1 699	20		2 342 0 340 0
	50	5572	409	1323	259	5131	679	580 9949	1 698	10		3 513 0 510 0
			410		259		679		1 698			4 084 0 680 0
19	0	0.534 5982		0.845 1064		0.632 5810		1.580 8253		0	41	
	10	6392	410	0804	260	6489	679	580 6557	1 696	50		5 855 0 850 0
	20	6801	409	0545	259	7167	678	580 4861	1 696	40		6 1026 0 1020 0
	30	7211	410	0286	259	7846	679	580 3165	1 696	30		7 1197 0 1190 0
	40	7621	410	0027	259	8525	679	580 1470	1 695	20		8 1368 0 1360 0
	50	8030	409	0.844 9767	260	9204	679	579 9774	1 696	10		9 1539 0 1530 0
			410		259		679		1 695			
20	0	0.534 8440		0.844 9508		0.632 9883		1.579 8079		0	40	
												1690
												1 169 0
												2 338 0
												3 507 0
												4 676 0
												5 845 0
												6 1014 0
												7 1183 0
												8 1352 0
												9 1521 0
		</										

32° 20'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
20	0	0.534 8440		0.844 9508		0.632 9883		1.579 8079		0	40	
	10	8850	410	9249	259	0 633 0562	679	579 6385	1 694	50		Sine
	20	9259	409	8990	259	1242	680	.579 4690	1 695	40		408 409 410
	30	9669	410	8730	260	1921	679	.579 2996	1 694	30		1 30 8 40 9 41 0
	40	0.535 0079	410	8471	259	2600	679	.579 1302	1 694	20		2 81 6 81 8 82 0
	50	0488	410	8211	260	3279	679	.578 9609	1 693	10		3 122 4 122 7 123 0
					259		680		1 694			4 163 2 163 6 164 0
21	0	0.535 0898		0.844 7952		0.633 3959		1.578 7915		0	39	
	10	1307	409	7693	259	4638	679	.578 6222	1 693	50		5 204 0 204 5 205 0
	20	1717	410	7433	260	5317	679	.578 4529	1 693	40		6 214 8 245 4 246 0
	30	2126	409	7174	259	5997	680	.578 2837	1 692	30		7 285 6 386 3 387 0
	40	2536	410	6914	260	6676	679	.578 1144	1 693	20		8 326 4 327 2 328 0
	50	2945	409	6655	259	7356	680	.577 9452	1 692	10		9 367 2 368 1 369 0
			410		260		679		1 692			
22	0	0.535 3355		0.844 6395		0.633 8035		1.577 7760		0	38	
	10	3764	409	6136	259	8715	680	.577 6069	1 691	50		Cosine
	20	4174	410	5876	260	9394	679	.577 4377	1 692	40		259 260 261
	30	4583	409	5616	259	0.634 0074	680	.577 2686	1 691	30		1 25 9 26 0 26 1
	40	4993	410	5357	260	0754	680	.577 0996	1 690	20		2 51 8 52 0 52 2
	50	5402	409	5097	259	1434	680	.576 9305	1 691	10		3 77 7 78 0 78 3
			410		260		679		1 690			4 103 6 104 0 104 4
23	0	0.535 5812		0.844 4838		0.634 2113		1.576 7615		0	37	
	10	6221	409	4578	260	2793	680	.576 5925	1 690	50		5 129 5 130 0 130 5
	20	6630	410	4318	260	3473	680	.576 4235	1 690	40		6 155 4 156 0 156 6
	30	7040	409	4058	259	4153	680	.576 2546	1 689	30		7 181 3 182 0 182 7
	40	7449	410	3799	260	4833	680	.576 0856	1 690	20		8 207 2 208 0 208 8
	50	7859	409	3539	260	5513	680	.575 9167	1 689	10		9 233 1 234 0 234 9
			409		260		680		1 688			
24	0	0.535 8268		0.844 3279		0.634 6193		1.575 7479		0	36	
	10	8677	409	3019	260	6873	680	.575 5790	1 689	50		Tangent
	20	9087	410	2760	259	7553	680	.575 4102	1 688	40		679 680
	30	9496	409	2500	260	8233	680	.575 2414	1 688	30		1 67 9 68 0
	40	9905	410	2240	259	8914	681	.575 0726	1 688	20		2 135 8 136 0
	50	0.536 0315	410	1980	260	9594	680	.574 9039	1 687	10		3 203 7 204 0
			409		260		680		1 687			4 271 6 272 0
25	0	0.536 0724		0.844 1720		0.635 0274		1.574 7352		0	35	
	10	1133	409	1460	260	0954	681	.574 5665	1 687	50		5 339 5 340 0
	20	1542	409	1200	260	1635	681	.574 3978	1 687	40		6 407 4 408 0
	30	1952	410	0940	260	2315	680	.574 2292	1 686	30		7 475 3 476 0
	40	2361	409	0681	259	2996	681	.574 0606	1 686	20		8 543 2 544 0
	50	2770	409	0421	260	3676	680	.573 8920	1 686	10		9 611 1 612 0
			409		260		681		1 686			
26	0	0.536 3179		0.844 0161		0.635 4357		1.573 7234		0	34	
	10	3588	409	0 843 9900	261	5037	680	.573 5549	1 685	50		681 682
	20	3997	409	9640	260	5718	681	.573 3863	1 685	40		1 68 1 68 2
	30	4407	410	9380	260	6399	681	.573 2179	1 684	30		2 136 2 136 4
	40	4816	409	9120	260	7079	681	.573 0494	1 684	20		3 204 3 204 6
	50	5225	409	8860	260	7760	681	.572 8810	1 684	10		4 272 4 272 8
			409		260		681		1 684			5 340 5 341 0
27	0	0.536 5634		0.843 8600		0.635 8441		1.572 7126		0	33	
	10	6043	409	8340	260	9122	681	.572 5442	1 684	50		6 408 6 409 2
	20	6452	409	8080	260	9803	681	.572 3758	1 684	40		7 476 7 477 4
	30	6861	409	7820	261	0.636 0484	681	.572 2075	1 683	30		8 544 8 545 6
	40	7270	409	7559	260	1165	681	.572 0392	1 683	20		9 612 9 613 8
	50	7679	410	7299	260	1846	681	.571 8709	1 683	10		
			410		260		681		1 683			Cotangent
28	0	0.536 8089		0.843 7039		0.636 2527		1.571 7026		0	32	
	10	8498	409	6779	260	3208	681	.571 5344	1 682	50		1700 1690
	20	8907	409	6518	261	3889	681	.571 3662	1 682	40		1 170 0 169 0
	30	9316	409	6258	260	4570	681	.571 1980	1 682	30		2 340 0 338 0
	40	9725	409	5998	260	5251	681	.571 0299	1 681	20		3 510 0 507 0
	50	0.537 0134	409	5737	261	5933	682	.570 8618	1 681	10		4 680 0 676 0
			409		260		681		1 682			5 850 0 845 0
29	0	0.537 0543		0.843 5477		0.636 6614		1.570 6936		0	31	
	10	0951	408	5217	260	7295	681	.570 5256	1 680	50		6 1020 0 1014 0
	20	1360	409	4956	261	7977	682	.570 3575	1 681	40		7 1190 0 1183 0
	30	1769	409	4696	260	8658	681	.570 1895	1 680	30		8 1360 0 1352 0
	40	2178	409	4435	260	9340	682	.570 0215	1 680	20		9 1530 0 1521 0
	50	2587	409	4175	261	0 637 0021	681	.569 8535	1 679	10		
			409		261		682		1 679			1680
30	0	0.537 2996		0.843 3914		0.637 0703		1.569 6856		0	30	
												1 168 0
												2 336 0
												3 504 0
												4 672 0
												5 840 0
												6 1008 0
												7 1176 0
												8 1344 0
												9 1512 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff.	"	'	Proportional Parts

57° 30'

32° 30'

	'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
30	0	0.537 2996			0.843 3914		0.637 0703		1.569 6856		0	30	
	10	3405	409		3654	260	1384	681	.569 5177	1 679	50		Sine
	20	3814	409		3393	261	2066	682	.569 3498	1 679	40		408 409
	30	4223	409		3133	260	2748	682	.569 1819	1 679	30		1 40 8 40 9
	40	4632	409		2872	261	3429	681	.569 0140	1 679	20		2 81 6 81 8
	50	5040	409		2612	260	4111	682	.568 8462	1 678	10		3 122 4 122 7
31	0	0.537 5449			0.843 2351		0.637 4793		1.568 6784		0	29	
	10	5858	409		2091	260	5475	682	.568 5107	1 677	50		4 163 2 163 6
	20	6267	409		1830	261	6157	682	.568 3429	1 678	40		5 204 0 204 5
	30	6676	409		1569	261	6839	682	.568 1752	1 677	30		6 244 8 245 4
	40	7084	408		1309	260	7521	682	.568 0075	1 677	20		7 285 6 286 3
	50	7493	409		1048	261	8203	682	.567 8398	1 677	10		8 326 4 327 2
32	0	0.537 7902			0.843 0787		0.637 8885		1.567 6722		0	28	
	10	8311	409		0526	261	9567	682	.567 5046	1 676	50		9 367 2 368 1
	20	8719	408		0266	260	0 638 0249	682	.567 3370	1 676	40		Cosine
	30	9128	409		0005	261	0931	682	.567 1694	1 676	30		260 261 262
	40	9537	408		0 842 9744	261	1613	682	.567 0019	1 675	20		1 26 0 26 1 26 2
	50	9945	409		9483	261	2296	683	.566 8344	1 675	10		2 52 0 52 2 52 4
33	0	0.538 0354			0 842 9222		0.638 2978		1.566 6669		0	27	
	10	0763	409		8962	260	3660	682	.566 4994	1 675	50		3 78 0 78 3 78 6
	20	1171	408		8701	261	4343	683	.566 3320	1 674	40		4 104 0 104 4 104 8
	30	1580	409		8440	261	5025	682	.566 1646	1 674	30		5 130 0 130 5 131 0
	40	1989	408		8179	261	5708	683	.565 9972	1 674	20		6 156 0 156 6 157 2
	50	2397	409		7918	261	6390	682	.565 8298	1 674	10		7 182 0 182 7 183 4
34	0	0.538 2806			0.842 7657		0.638 7073		1.565 6625		0	26	
	10	3214	408		7396	261	7755	682	.565 4952	1 673	50		8 208 0 208 8 209 6
	20	3623	409		7135	261	8438	683	.565 3279	1 673	40		9 234 0 234 9 235 8
	30	4031	408		6874	261	9121	682	.565 1606	1 673	30		Tangent
	40	4440	409		6613	261	9803	682	.564 9934	1 672	20		681 682
	50	4849	408		6352	261	0 639 0486	683	.564 8262	1 672	10		1 68 1 68 2
35	0	0 538 5257			0.842 6091		0.639 1169		1.564 6590		0	25	
	10	5666	409		5830	261	1852	683	.564 4918	1 672	50		2 136 2 136 4
	20	6074	408		5569	261	2535	683	.564 3247	1 671	40		3 204 3 204 6
	30	6482	409		5307	262	3218	683	.564 1576	1 671	30		4 272 4 272 8
	40	6891	408		5046	261	3901	683	.563 9905	1 671	20		5 340 5 341 0
	50	7299	409		4785	261	4584	683	.563 8235	1 670	10		6 408 6 409 2
36	0	0.538 7708			0.842 4524		0.639 5267		1.563 6564		0	24	
	10	8116	408		4263	261	5950	683	.563 4894	1 670	50		7 476 7 477 4
	20	8525	409		4002	262	6633	683	.563 3224	1 670	40		8 544 8 545 6
	30	8933	408		3740	262	7316	683	.563 1555	1 669	30		9 612 9 613 8
	40	9341	409		3479	261	8000	684	.562 9885	1 670	20		Tangent
	50	9750	408		3218	262	8683	683	.562 8216	1 669	10		683 684
37	0	0.539 0158			0.842 2956		0.639 9366		1.562 6548		0	23	
	10	0567	409		2695	261	0 640 0050	684	.562 4879	1 669	50		1 68 3 68 4
	20	0975	408		2434	262	0733	683	.562 3211	1 668	40		2 136 6 136 8
	30	1383	409		2172	261	1416	683	.562 1543	1 668	30		3 201 9 205 2
	40	1792	408		1911	261	2100	684	.561 9875	1 668	20		4 273 2 273 6
	50	2200	408		1650	262	2783	683	.561 8207	1 667	10		5 341 5 342 0
38	0	0.539 2608			0 842 1388		0.640 3467		1.561 6540		0	22	
	10	3016	408		1127	261	4151	684	.561 4873	1 667	50		6 409 8 410 4
	20	3425	409		0865	262	4834	683	.561 3206	1 667	40		7 478 1 478 8
	30	3833	408		0604	261	5518	684	.561 1540	1 666	30		8 546 4 547 2
	40	4241	408		0342	262	6202	684	.560 9873	1 667	20		9 614 7 615 6
	50	4649	409		0081	262	6886	683	.560 8207	1 666	10		Cotangent
39	0	0.539 5058			0.841 9819		0.640 7569		1.560 6542		0	21	
	10	5466	408		9558	261	8253	684	.560 4876	1 666	50		1660
	20	5874	408		9296	262	8937	684	.560 3211	1 665	40		1 166 0
	30	6282	408		9034	261	9621	684	.560 1546	1 665	30		2 332 0
	40	6690	408		8773	262	0.641 0305	684	.559 9881	1 665	20		3 498 0
	50	7098	409		8511	262	0989	684	.559 8217	1 664	10		4 664 0
40	0	0.539 7507			0.841 8249		0.641 1673		1.559 6552		0	20	
													5 830 0
													6 996 0
													7 1162 0
													8 1325 0
													9 1494 0
													Proportional Parts
			Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	

32° 40'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
40	0	0.539 7507		0.841 8249		0.641 1673		1.559 6552		0	20	Sine
	10	7915	408	7988	261	2358	685	.559 4888	1 664	50		407 408
	20	8323	408	7726	262	3042	684	.559 3225	1 663	40		1 40 7 40 8
	30	8731	408	7464	262	3726	684	.559 1561	1 664	30		2 81 4 81 6
	40	9139	408	7203	261	4410	684	.558 9898	1 663	20		3 122 1 122 4
	50	9547	408	6941	262	5095	685	.558 8235	1 663	10		4 162 8 163 2
41	0	0.539 9955		0.841 6679		0.641 5779		1.558 6572		0	19	5 203 5 204 0
	10	0.540 0363	408	6417	262	6463	684	.558 4910	1 662	50		6 241 2 244 8
	20	0771	408	6155	262	7148	685	.558 3247	1 663	40		7 281 9 285 6
	30	1179	408	5893	261	7832	684	.558 1585	1 662	30		8 323 6 326 4
	40	1587	408	5632	262	8517	685	.557 9924	1 661	20		9 366 3 367 2
	50	1995	408	5370	262	9201	684	.557 8262	1 661	10		
42	0	0.540 2403		0.841 5108		0.641 9886		1.557 6601		0	18	Cosine
	10	2811	408	4846	262	0.642 0571	685	.557 4940	1 661	50		261 262 263
	20	3219	408	4584	262	1255	684	.557 3279	1 661	40		1 26 1 26 2 26 3
	30	3627	408	4322	262	1940	685	.557 1619	1 660	30		2 52 2 52 1 52 6
	40	4035	408	4060	262	2625	685	.556 9958	1 661	20		3 78 3 78 6 78 9
	50	4443	408	3798	262	3310	685	.556 8298	1 660	10		4 101 4 101 8 105 2
43	0	0.540 4861		0.841 3536		0.642 3994		1.556 6639		0	17	5 130 5 131 0 131 5
	10	5259	408	3274	262	4679	685	.556 4979	1 660	50		6 156 6 157 2 157 8
	20	5667	408	3012	262	5364	685	.556 3320	1 659	40		7 182 7 183 4 184 1
	30	6074	407	2750	262	6049	685	.556 1661	1 659	30		8 208 8 209 6 210 4
	40	6482	408	2488	262	6734	685	.556 0002	1 659	20		9 234 9 235 8 236 7
	50	6890	408	2226	263	7419	685	.555 8344	1 658	10		
44	0	0.540 7298		0.841 1963		0.642 8105		1.555 6685		0	16	Tangent
	10	7706	408	1701	262	8790	685	.555 5027	1 658	50		684 685
	20	8114	408	1439	262	9475	685	.555 3370	1 657	40		1 68 4 68 5
	30	8521	407	1177	262	0.643 0160	685	.555 1712	1 658	30		2 136 8 137 0
	40	8929	408	0915	262	0845	685	.555 0055	1 657	20		3 205 2 205 5
	50	9337	408	0652	262	1531	686	.554 8398	1 657	10		4 273 6 274 0
45	0	0.540 9745		0.841 0390		0.643 2216		1.554 6741		0	15	5 342 0 342 5
	10	0.541 0152	407	0128	262	2902	686	.554 5085	1 656	50		6 410 4 411 0
	20	0560	408	0.840 9866	262	3587	685	.554 3429	1 656	40		7 478 8 479 5
	30	0968	408	9603	262	4273	685	.554 1773	1 656	30		8 547 2 548 0
	40	1376	407	9341	262	4958	686	.554 0117	1 656	20		9 615 6 616 5
	50	1783	408	9079	263	5644	685	.553 8461	1 655	10		
46	0	0.541 2191		0.840 8816		0.643 6329		1.553 6806		0	14	686 687
	10	2599	408	8554	262	7015	686	.553 5151	1 655	50		1 68 6 68 7
	20	3006	407	8291	263	7701	686	.553 3496	1 655	40		2 137 2 137 4
	30	3414	408	8029	262	8386	685	.553 1842	1 654	30		3 205 8 206 1
	40	3822	407	7766	262	9072	686	.553 0188	1 654	20		4 274 4 274 8
	50	4229	408	7504	263	9758	686	.552 8534	1 654	10		5 343 0 343 5
47	0	0.541 4637		0.840 7241		0.644 0444		1.552 6880		0	13	6 411 6 412 2
	10	5044	407	6979	262	1130	686	.552 5226	1 654	50		7 480 2 480 0
	20	5452	408	6716	263	1816	686	.552 3573	1 653	40		8 548 8 549 6
	30	5859	407	6454	262	2502	686	.552 1920	1 653	30		9 617 4 618 3
	40	6267	408	6191	263	3188	686	.552 0267	1 652	20		
	50	6675	407	5929	263	3874	686	.551 8615	1 652	10		
48	0	0.541 7082		0.840 5666		0.644 4560		1.551 6963		0	12	Cotangent
	10	7490	408	5403	263	5246	686	.551 5311	1 652	50		1670 1660
	20	7897	407	5141	262	5933	687	.551 3659	1 652	40		1 167 0 166 0
	30	8305	408	4878	263	6619	686	.551 2007	1 652	30		2 334 0 332 0
	40	8712	407	4615	263	7305	686	.551 0356	1 651	20		3 501 0 498 0
	50	9120	408	4353	263	7992	687	.550 8705	1 651	10		4 668 0 664 0
49	0	0.541 9527		0.840 4090		0.644 8678		1.550 7054		0	11	5 835 0 830 0
	10	9934	407	3827	263	9364	686	.550 5404	1 650	50		6 1002 0 996 0
	20	0.542 0342	408	3564	262	0.645 0051	687	.550 3754	1 650	40		7 1169 0 1162 0
	30	0749	407	3302	263	0737	686	.550 2103	1 651	30		8 1336 0 1328 0
	40	1157	408	3039	263	1424	687	.550 0454	1 649	20		9 1503 0 1494 0
	50	1564	407	2776	263	2111	686	.549 8804	1 649	10		
50	0	0.542 1971		0.840 2513		0.645 2797		1.549 7155		0	10	1650
												1 165 0
												2 330 0
												3 495 0
												4 660 0
												5 825 0
												6 990 0
												7 1155 0
												8 1320 0
												9 1485 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

57° 10'

32° 50'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
50	0	0.542 1971		0.840 2513		0.645 2797		1.549 7155		0	10	
	10	2379	408	2250	263	3484	687	.549 5506	1 649	50		Sine
	20	2786	407	1987	263	4171	687	.549 3857	1 649	40		406 407 408
	30	3193	407	1724	263	4858	687	.549 2209	1 648	30		1 40 6 40 7 40 8
	40	3601	408	1461	263	5544	686	.549 0560	1 649	20		2 81 2 81 4 81 6
	50	4008	407	1199	262	6231	687	.548 8912	1 648	10		3 121 8 122 1 122 4
51	0	0.542 4415		0.840 0936		0.645 6918		1.548 7264		0	9	4 162 4 162 8 163 2
	10	4823	408	0673	263	7605	687	.548 5617	1 647	50		5 203 0 203 5 204 0
	20	5230	407	0410	263	8292	687	.548 3970	1 647	40		6 243 6 244 2 244 8
	30	5637	407	0147	264	8979	687	.548 2323	1 647	30		7 284 2 284 9 285 6
	40	6044	408	0.839 9883	263	9666	687	.548 0676	1 647	20		8 324 8 325 6 326 4
	50	6452	407	9620	263	0.646 0353	688	.547 9029	1 646	10		9 365 4 366 3 367 2
52	0	0.542 6859		0.839 9357		0.646 1041		1.547 7383		0	8	Cosine
	10	7266	407	9094	263	1728	687	.547 5737	1 646	50		262 263 264
	20	7673	407	8831	263	2415	687	.547 4091	1 646	40		1 26 2 26 3 26 4
	30	8080	408	8568	263	3102	688	.547 2445	1 645	30		2 52 4 52 6 52 8
	40	8488	407	8305	263	3790	687	.547 0800	1 645	20		3 78 6 78 9 79 2
	50	8895	407	8042	264	4477	688	.546 9155	1 645	10		4 104 8 105 2 105 6
53	0	0.542 9302		0.839 7778		0.646 5165		1.546 7510		0	7	5 131 0 131 5 132 0
	10	9709	407	7515	263	5852	688	.546 5866	1 644	50		6 157 2 157 8 158 4
	20	0 543 0116	407	7252	263	6540	688	.546 4221	1 645	40		7 183 4 184 1 184 8
	30	0523	407	6989	263	7227	687	.546 2577	1 644	30		8 209 6 210 4 211 2
	40	0930	407	6725	264	7915	688	.546 0933	1 644	20		9 235 8 236 7 237 6
	50	1337	407	6462	263	8602	687	.545 9290	1 643	10		Tangent
54	0	0.543 1744		0.839 6199		0.646 9290		1.545 7647		0	6	686 687
	10	2152	408	5935	264	9978	688	.545 6003	1 644	50		1 68 6 68 7
	20	2559	407	5672	263	0.647 0666	688	.545 4361	1 642	40		2 137 2 137 4
	30	2966	407	5409	263	1353	687	.545 2718	1 643	30		3 205 8 206 1
	40	3373	407	5145	264	2041	688	.545 1076	1 642	20		4 274 4 274 8
	50	3780	407	4882	263	2729	688	.544 9433	1 643	10		5 343 0 343 5
55	0	0.543 4187		0.839 4618		0.647 3417		1.544 7792		0	5	6 411 6 412 2
	10	4594	407	4355	263	4105	688	.544 6150	1 642	50		7 480 2 480 8
	20	5001	407	4091	264	4793	688	.544 4509	1 641	40		8 548 8 549 6
	30	5408	406	3828	264	5481	688	.544 2867	1 642	30		9 617 4 618 3
	40	5814	407	3564	263	6169	689	.544 1227	1 641	20		688 689 690
	50	6221	407	3301	264	6858	688	.543 9586	1 640	10		1 68 8 68 9 69 0
56	0	0.543 6628		0.839 3037		0.647 7546		1.543 7946		0	4	2 137 6 137 8
	10	7035	407	2774	263	8234	688	.543 6305	1 641	50		3 206 4 206 7
	20	7442	407	2510	264	8922	688	.543 4666	1 639	40		4 275 2 275 6
	30	7849	407	2246	264	9611	689	.543 3026	1 640	30		5 344 0 344 5
	40	8256	407	1983	263	0.648 0299	688	.543 1386	1 640	20		6 412 8 413 4
	50	8663	406	1719	264	0988	689	.542 9747	1 639	10		7 481 6 482 3
57	0	0.543 9069		0.839 1455		0.648 1676		1.542 8108		0	3	8 550 4 551 2
	10	9476	407	1192	263	2365	689	.542 6470	1 638	50		9 619 2 620 1
	20	9883	407	0928	264	3053	688	.542 4831	1 639	40		620 1 621 0
	30	0 544 0290	407	0664	264	3742	689	.542 3193	1 638	30		Cotangent
	40	0697	406	0400	264	4430	688	.542 1555	1 638	20		1650 1660
	50	1103	407	0137	264	5119	689	.541 9917	1 637	10		1 165 0 164 0
58	0	0.544 1510		0.838 9873		0.648 5808		1.541 8280		0	2	2 330 0 328 0
	10	1917	407	9609	264	6497	689	.541 6643	1 637	50		3 495 0 492 0
	20	2324	406	9345	264	7185	688	.541 5006	1 637	40		4 660 0 656 0
	30	2730	406	9081	264	7874	689	.541 3369	1 637	30		5 825 0 820 0
	40	3137	407	8817	263	8563	689	.541 1733	1 636	20		6 990 0 984 0
	50	3544	407	8554	264	9252	689	.541 0096	1 636	10		7 1155 0 1148 0
59	0	0.544 3951		0.838 8290		0.648 9941		1.540 8460		0	1	8 1320 0 1312 0
	10	4357	406	8026	264	0.649 0630	689	.540 6825	1 635	50		9 1485 0 1476 0
	20	4764	407	7762	264	1319	689	.540 5189	1 636	40		1630
	30	5170	406	7498	264	2008	689	.540 3554	1 635	30		1 163 0
	40	5577	407	7234	264	2697	689	.540 1919	1 635	20		2 326 0
	50	5984	406	6970	264	3387	690	.540 0284	1 634	10		3 489 0
60	0	0.544 6390		0.838 6706		0.649 4076		1.539 8650		0	0	4 652 0
												5 815 0
												6 978 0
												7 1141 0
												8 1304 0
												9 1467 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff.	"	'	Proportional Parts

57° 0'

33° 0'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff.			Proportional Parts
0	0	0.544 6390		0.838 6706		0.649 4076		1.539 8650		0	60	
	10	6797	407	6442	264	4765	689	.539 7015	1 635	50		
	20	7204	407	6178	264	5455	690	.539 5381	1 634	40		
	30	7610	406	5913	265	6144	689	.539 3748	1 633	30		
	40	8017	407	5649	264	6833	689	.539 2114	1 634	20		
	50	8423	406	5385	264	7523	690	.539 0481	1 633	10		
			407		264		689		1 633			
1	0	0.544 8830		0.838 5121		0.649 8212		1.538 8848		0	59	
	10	9236	406	4857	264	8902	690	.538 7215	1 633	50		
	20	9643	407	4593	264	9592	690	.538 5582	1 633	40		
	30	0.545 0049	406	4328	265	0 650 0281	689	.538 3950	1 632	30		
	40	0456	407	4064	264	0971	690	.538 2318	1 632	20		
	50	0862	406	3800	264	1661	690	.538 0686	1 632	10		
			407		264		689		1 632			
2	0	0.545 1269		0.838 3536		0.650 2350		1.537 9054		0	58	
	10	1675	406	3271	265	3040	690	.537 7423	1 631	50		
	20	2081	406	3007	264	3730	690	.537 5792	1 631	40		
	30	2488	407	2743	264	4420	690	.537 4161	1 631	30		
	40	2894	406	2478	265	5110	690	.537 2530	1 631	20		
	50	3301	407	2214	264	5800	690	.537 0900	1 630	10		
			406		264		690		1 630			
3	0	0.545 3707		0.838 1950		0.650 6490		1.536 9270		0	57	
	10	4113	406	1685	265	7180	690	.536 7640	1 630	50		
	20	4520	407	1421	264	7870	690	.536 6010	1 630	40		
	30	4926	406	1156	265	8560	690	.536 4381	1 629	30		
	40	5332	406	0892	264	9250	690	.536 2752	1 629	20		
	50	5739	407	0627	265	9941	691	.536 1123	1 629	10		
			406		264		690		1 629			
4	0	0.545 6145		0.838 0363		0.651 0631		1.535 9494		0	56	
	10	6551	406	0098	265	1321	690	.535 7866	1 628	50		
	20	6958	407	0837 9834	264	2012	691	.535 6238	1 628	40		
	30	7364	406	9569	264	2702	690	.535 4610	1 628	30		
	40	7770	406	9305	265	3393	691	.535 2982	1 628	20		
	50	8176	407	9040	265	4083	690	.535 1355	1 627	10		
			406		265		691		1 628			
5	0	0.545 8583		0.837 8775		0.651 4774		1.534 9727		0	55	
	10	8989	406	8511	264	5464	690	.534 8100	1 627	50		
	20	9395	406	8246	265	6155	691	.534 6474	1 626	40		
	30	9801	406	7981	265	6846	691	.534 4847	1 627	30		
	40	0.546 0207	406	7717	264	7536	690	.534 3221	1 626	20		
	50	0613	407	7452	265	8227	691	.534 1595	1 626	10		
			406		265		691		1 626			
6	0	0.546 1020		0.837 7187		0.651 8918		1.533 9969		0	54	
	10	1426	406	6922	265	9609	691	.533 8343	1 626	50		
	20	1832	406	6658	264	0.652 0300	691	.533 6718	1 625	40		
	30	2238	406	6393	265	0991	691	.533 5093	1 625	30		
	40	2644	406	6128	265	1682	691	.533 3468	1 625	20		
	50	3050	406	5863	265	2373	691	.533 1844	1 624	10		
			406		265		691		1 625			
7	0	0.546 3456		0.837 5598		0.652 3064		1.533 0219		0	53	
	10	3862	406	5333	265	3755	691	.532 8595	1 624	50		
	20	4268	406	5068	265	4446	691	.532 6972	1 623	40		
	30	4674	406	4804	264	5137	691	.532 5348	1 624	30		
	40	5080	406	4539	265	5829	692	.532 3725	1 623	20		
	50	5486	406	4274	265	6520	691	.532 2101	1 624	10		
			406		265		691		1 622			
8	0	0.546 5892		0.837 4009		0.652 7211		1.532 0479		0	52	
	10	6298	406	3744	265	7903	692	.531 8856	1 623	50		
	20	6704	406	3479	265	8594	691	.531 7234	1 622	40		
	30	7110	406	3214	265	9286	692	.531 5611	1 623	30		
	40	7516	406	2949	265	9977	691	.531 3990	1 621	20		
	50	7922	406	2683	266	0 653 0669	692	.531 2368	1 622	10		
			406		265		691		1 622			
9	0	0.546 8328		0.837 2418		0.653 1360		1.531 0746		0	51	
	10	8734	406	2153	265	2052	692	.530 9125	1 621	50		
	20	9140	406	1888	265	2744	692	.530 7504	1 621	40		
	30	9546	406	1623	265	3435	691	.530 5884	1 620	30		
	40	9952	406	1358	265	4127	692	.530 4263	1 621	20		
	50	0.547 0357	405	1093	265	4819	692	.530 2643	1 620	10		
			406		266		692		1 620			
10	0	0.547 0763		0.837 0827		0.653 5511		1.530 1023		0	50	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff.	"	'	Proportional Parts

56° 50'

33° 10'

	'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
10	0	0.547 0763			0.837 0827		0.653 5511		1.530 1023		0	50	
	10	1169	406		0562	265	6203	692	.529 9403	1 620	50		
	20	1575	406		0297	265	6895	692	.529 7784	1 619	40		
	30	1981	406		0032	265	7587	692	.529 6164	1 620	30		
	40	2386	405		0.836 9766	266	8279	692	.529 4545	1 619	20		
	50	2792	406		9501	265	8971	692	.529 2927	1 618	10		
			406			265		692		1 619			
11	0	0.547 3198			0.836 9236		0.653 9663		1.529 1308		0	49	
	10	3604	406		8970	266	0.654 0355	692	.528 9690	1 618	50		
	20	4009	405		8705	265	1047	692	.528 8072	1 618	40		
	30	4415	406		8439	266	1740	693	.528 6454	1 618	30		
	40	4821	406		8174	265	2432	692	.528 4836	1 618	20		
	50	5227	406		7909	265	3124	692	.528 3219	1 617	10		
			405			266		693		1 617			
12	0	0.547 5632			0.836 7643		0.654 3817		1.528 1602		0	48	
	10	6038	406		7378	265	4509	692	.527 9985	1 617	50		
	20	6444	406		7112	266	5202	693	.527 8368	1 617	40		
	30	6849	405		6847	265	5894	692	.527 6752	1 616	30		
	40	7255	406		6581	266	6587	693	.527 5136	1 616	20		
	50	7660	405		6316	265	7279	692	.527 3520	1 616	10		
			406			266		693		1 616			
13	0	0.547 8066			0.836 6050		0.654 7972		1.527 1904		0	47	
	10	8472	406		5784	266	8665	693	.527 0289	1 615	50		
	20	8877	405		5519	265	9357	692	.526 8674	1 615	40		
	30	9283	406		5253	266	0.655 0050	693	.526 7059	1 615	30		
	40	9688	405		4987	266	0743	693	.526 5444	1 615	20		
	50	0 548 0094	406		4722	265	1436	693	.526 3829	1 615	10		
			405			266		693		1 614			
14	0	0.548 0499			0.836 4456		0.655 2129		1.526 2215		0	46	
	10	0905	406		4190	266	2822	693	.526 0601	1 614	50		
	20	1310	405		3925	265	3515	693	.525 8987	1 614	40		
	30	1716	406		3659	266	4208	693	.525 7374	1 613	30		
	40	2121	405		3393	266	4901	693	.525 5761	1 613	20		
	50	2527	406		3127	266	5594	693	.525 4148	1 613	10		
			405			265		693		1 613			
15	0	0.548 2932			0.836 2862		0.655 6287		1.525 2535		0	45	
	10	3338	406		2596	266	6981	694	.525 0922	1 613	50		
	20	3743	405		2330	266	7674	693	.524 9310	1 612	40		
	30	4149	406		2064	266	8367	693	.524 7698	1 612	30		
	40	4554	405		1798	266	9060	693	.524 6086	1 612	20		
	50	4959	406		1532	266	9754	694	.524 4474	1 612	10		
			406			266		693		1 611			
16	0	0.548 5365			0.836 1266		0.656 0447		1.524 2863		0	44	
	10	5770	405		1000	266	1141	694	.524 1252	1 611	50		
	20	6175	406		0734	266	1834	693	.523 9641	1 611	40		
	30	6581	406		0468	266	2528	694	.523 8030	1 611	30		
	40	6986	405		0202	266	3222	694	.523 6420	1 610	20		
	50	7391	406		0.835 9936	266	3915	693	.523 4810	1 610	10		
			406			266		694		1 610			
17	0	0.548 7797			0.835 9670		0.656 4609		1.523 3200		0	43	
	10	8202	405		9404	266	5303	694	.523 1590	1 610	50		
	20	8607	405		9138	266	5997	694	.522 9981	1 609	40		
	30	9012	406		8872	266	6690	693	.522 8371	1 610	30		
	40	9418	405		8606	266	7384	694	.522 6762	1 609	20		
	50	9823	406		8340	266	8078	694	.522 5154	1 608	10		
			405			266		694		1 609			
18	0	0.549 0228			0.835 8074		0.656 8772		1.522 3545		0	42	
	10	0633	405		7807	267	9466	694	.522 1937	1 608	50		
	20	1039	406		7541	266	0.657 0160	694	.522 0329	1 608	40		
	30	1444	405		7275	266	0854	694	.521 8721	1 608	30		
	40	1849	406		7009	266	1549	695	.521 7113	1 608	20		
	50	2254	405		6742	267	2243	694	.521 5506	1 607	10		
			405			266		694		1 607			
19	0	0.549 2659			0.835 6476		0.657 2937		1.521 3899		0	41	
	10	3064	405		6210	266	3631	694	.521 2292	1 607	50		
	20	3469	406		5944	266	4326	695	.521 0685	1 607	40		
	30	3875	406		5677	267	5020	694	.520 9079	1 606	30		
	40	4280	405		5411	266	5714	694	.520 7473	1 606	20		
	50	4685	406		5145	266	6409	695	.520 5867	1 606	10		
			405			267		694		1 606			
20	0	0.549 5090			0.835 4878		0.657 7103		1.520 4261		0	40	
			Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

56° 40'

33° 20'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
20	0	0.549 5090		0.835 4878		0.657 7103		1.520 4261		0	40	
	10	5495	405	4612	266	7798	695	.520 2656	1 605	50		Sine
	20	5900	405	4345	287	8493	695	.520 1051	1 605	40		404 405
	30	6305	405	4079	266	9187	694	.519 9446	1 605	30		1 40 4 40 5
	40	6710	405	3812	267	9882	695	.519 7841	1 605	20		2 80 8 81 0
	50	7115	405	3546	266	0.658 0577	695	.519 6237	1 604	10		3 121 2 121 5
			405		267		694		1 605			4 161 6 162 0
21	0	0.549 7520		0.835 3279		0.658 1271		1.519 4632		0	39	
	10	7925	405	3013	266	1966	695	.519 3028	1 604	50		5 202 0 202 5
	20	8330	405	2746	267	2661	695	.519 1424	1 604	40		6 242 4 243 0
	30	8735	405	2480	266	3356	695	.518 9821	1 603	30		7 282 8 283 5
	40	9140	405	2213	267	4051	695	.518 8218	1 603	20		8 323 2 324 0
	50	9545	405	1946	266	4746	695	.518 6615	1 603	10		9 363 6 364 5
			405		266		695		1 603			
22	0	0.549 9950		0.835 1680		0.658 5441		1.518 5012		0	38	
	10	0 550 0354	404	1413	267	6136	695	.518 3409	1 603	50		Cosine
	20	0759	405	1146	267	6831	695	.518 1807	1 602	40		266 267 268
	30	1164	405	0880	266	7526	695	.518 0205	1 602	30		1 26 6 26 7 26 8
	40	1569	405	0613	267	8222	696	.517 8603	1 602	20		2 54 2 53 4 53 6
	50	1974	405	0346	267	8917	695	.517 7001	1 602	10		3 79 8 80 1 80 4
			405		266		695		1 601			4 106 4 106 8 107 2
23	0	0 550 2379		0.835 0080		0.658 9612		1.517 5400		0	37	
	10	2784	405	0 834 9813	267	0.659 0308	696	.517 3798	1 602	50		5 133 0 133 5 134 0
	20	3188	404	9546	267	1003	695	.517 2197	1 601	40		6 159 6 160 2 160 8
	30	3593	405	9279	267	1698	695	.517 0597	1 601	30		7 186 2 186 9 187 6
	40	3998	405	9012	267	2394	696	.516 8996	1 600	20		8 212 8 213 6 214 4
	50	4403	404	8746	266	3090	696	.516 7396	1 600	10		9 239 4 240 3 241 2
			404		267		695		1 600			
24	0	0 550 4807		0.834 8479		0.659 3785		1.516 5796		0	36	
	10	5212	405	8212	267	4481	696	.516 4196	1 600	50		Tangent
	20	5617	405	7945	267	5176	695	.516 2597	1 599	40		694 695
	30	6022	404	7678	267	5872	696	.516 0997	1 600	30		1 69 4 69 5
	40	6426	405	7411	267	6568	696	.515 9398	1 599	20		2 138 8 139 0
	50	6831	405	7144	267	7264	696	.515 7800	1 598	10		3 208 2 208 5
			405		267		696		1 598			4 277 6 278 0
25	0	0.550 7236		0.834 6877		0.659 7960		1.515 6201		0	35	
	10	7640	404	6610	267	8655	695	.515 4603	1 598	50		5 347 0 347 5
	20	8045	405	6343	267	9351	696	.515 3004	1 599	40		6 416 4 417 0
	30	8450	405	6076	267	0.660 0047	696	.515 1407	1 597	30		7 485 8 486 5
	40	8854	404	5809	267	0743	696	.514 9809	1 598	20		8 555 2 556 0
	50	9259	404	5542	267	1439	697	.514 8211	1 598	10		9 624 6 625 5
			404		267		697		1 597			696 697 698
26	0	0 550 9663		0.834 5275		0.660 2136		1.514 6614		0	34	
	10	0.551 0068	405	5008	267	2832	696	.514 5017	1 597	50		1 69 6 69 7 69 8
	20	0473	405	4740	268	3528	696	.514 3421	1 596	40		2 139 2 139 4 139 6
	30	0877	404	4473	267	4224	696	.514 1824	1 597	30		3 208 8 209 1 209 4
	40	1282	404	4206	267	4920	696	.514 0228	1 596	20		4 278 4 278 8 279 2
	50	1686	405	3939	267	5617	697	.513 8632	1 596	10		5 348 0 348 5 349 0
			405		267		696		1 596			6 417 6 418 2 418 8
27	0	0.551 2091		0.834 3672		0.660 6313		1.513 7036		0	33	
	10	2495	404	3404	268	7010	697	.513 5441	1 595	50		Tangent
	20	2900	404	3137	267	7706	697	.513 3845	1 596	40		1610 1600
	30	3304	404	2870	267	8403	697	.513 2250	1 595	30		1 161 0 160 0
	40	3709	405	2603	267	9099	696	.513 0655	1 595	20		2 322 0 320 0
	50	4113	404	2335	268	9796	697	.512 9061	1 594	10		3 483 0 480 0
			405		267		696		1 595			4 644 0 640 0
28	0	0.551 4518		0.834 2068		0.661 0492		1.512 7466		0	32	
	10	4922	404	1800	268	1189	697	.512 5872	1 594	50		5 805 0 800 0
	20	5326	404	1533	267	1886	697	.512 4278	1 594	40		6 966 0 960 0
	30	5731	405	1266	267	2583	697	.512 2685	1 593	30		7 1127 0 1120 0
	40	6135	404	0998	268	3279	696	.512 1091	1 594	20		8 1288 0 1280 0
	50	6540	404	0731	268	3976	697	.511 9498	1 593	10		9 1449 0 1440 0
			404		268		697		1 593			1590
29	0	0.551 6944		0.834 0463		0.661 4673		1.511 7905		0	31	
	10	7348	404	0196	267	5370	697	.511 6312	1 593	50		1 159 0
	20	7753	405	0 833 9928	268	6067	697	.511 4720	1 592	40		2 318 0
	30	8157	404	9661	267	6764	697	.511 3127	1 593	30		3 477 0
	40	8561	404	9393	268	7461	697	.511 1535	1 592	20		4 636 0
	50	8966	405	9126	267	8158	697	.510 9944	1 591	10		5 795 0
			404		268		698		1 592			6 954 0
30	0	0.551 9370		0.833 8858		0.661 8856		1.510 8352		0	30	
												7 1113 0
												8 1272 0
												9 1431 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

56° 30'

33° 30'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
30	0	0.551 9370		0.833 8858		0.661 8856		1.510 8352		0	30	
	10	9774	404	8591	267	9553	697	.510 6761	1 591	50		Sine
	20	0.552 0178	404	8323	268	0.662 0250	697	.510 5169	1 592	40		403 404 405
	30	0583	405	8055	268	0947	697	.510 3579	1 590	30		1 40 3 40 4 40 5
	40	0987	404	7788	267	1645	698	.510 1988	1 591	20		2 80 6 80 8 81 0
	50	1391	404	7520	268	2342	697	.510 0398	1 590	10		3 120 9 121 2 121 5
			404		268		698		1 591			4 161 2 161 6 162 0
31	0	0.552 1795		0.833 7252		0.662 3040		1.509 8807		0	29	
	10	2199	404	6985	267	3737	697	.509 7217	1 590	50		5 201 5 202 0 202 5
	20	2604	405	6717	268	4435	698	.509 5628	1 589	40		6 241 8 242 4 243 0
	30	3008	404	6449	268	5132	697	.509 4038	1 590	30		7 282 1 282 8 283 5
	40	3412	404	6181	267	5830	698	.509 2449	1 589	20		8 322 4 323 2 324 0
	50	3816	404	5914	268	6528	697	.509 0860	1 589	10		9 362 7 363 6 364 5
			404		268				1 589			
32	0	0.552 4220		0.833 5646		0.662 7225		1.508 9271		0	28	
	10	4624	404	5378	268	7923	698	.508 7683	1 588	50		Cosine
	20	5028	405	5110	268	8621	698	.508 6094	1 589	40		267 268 269
	30	5433	404	4842	268	9319	698	.508 4506	1 588	30		1 26 7 26 8 26 9
	40	5837	404	4574	268	0.663 0017	698	.508 2918	1 588	20		2 53 4 53 6 53 8
	50	6241	404	4306	268	0715	698	.508 1331	1 587	10		3 80 1 80 4 80 7
			404		268		698		1 588			4 106 8 107 2 107 6
33	0	0.552 6645		0.833 4038		0.663 1413		1.507 9743		0	27	
	10	7049	404	3771	267	2111	698	.507 8156	1 587	50		5 133 5 134 0 134 5
	20	7453	404	3503	268	2809	698	.507 6569	1 587	40		6 160 2 160 8 161 4
	30	7857	404	3235	268	3507	698	.507 4983	1 586	30		7 186 9 187 6 188 3
	40	8261	404	2967	268	4205	698	.507 3396	1 587	20		8 213 6 214 4 215 2
	50	8665	404	2699	269	4903	698	.507 1810	1 586	10		9 240 3 241 2 242 1
			404		269		698		1 586			
34	0	0.552 9069		0.833 2430		0.663 5601		1.507 0224		0	26	
	10	9473	404	2162	268	6300	699	.506 8638	1 586	50		Tangent
	20	9877	404	1894	268	6998	698	.506 7053	1 585	40		697 698
	30	0.553 0281	404	1626	268	7697	699	.506 5467	1 586	30		1 69 7 69 8
	40	0685	404	1358	268	8395	698	.506 3882	1 585	20		2 139 4 139 6
	50	1088	403	1090	268	9093	698	.506 2297	1 585	10		3 209 1 209 4
			404		268		699		1 584			4 278 8 279 2
35	0	0.553 1492		0.833 0822		0.663 9792		1.506 0713		0	25	
	10	1896	404	0554	268	0.664 0491	699	.505 9128	1 585	50		5 348 5 349 0
	20	2300	404	0285	269	1189	698	.505 7544	1 584	40		6 418 2 418 8
	30	2704	404	0017	268	1888	699	.505 5960	1 584	30		7 487 9 488 6
	40	3108	404	0.832 9749	268	2587	699	.505 4377	1 583	20		8 557 6 558 4
	50	3512	403	9481	269	3285	699	.505 2793	1 583	10		9 627 3 628 2
			403		269		699		1 583			699 700
36	0	0.553 3915		0.832 9212		0.664 3984		1.505 1210		0	24	
	10	4319	404	8944	268	4683	699	.504 9627	1 583	50		1 69 9 70 0
	20	4723	404	8676	268	5382	699	.504 8044	1 583	40		2 139 8 140 0
	30	5127	404	8407	269	6081	699	.504 6462	1 582	30		3 209 7 210 0
	40	5531	403	8139	268	6780	699	.504 4879	1 583	20		4 279 6 280 0
	50	5934	404	7871	269	7479	699	.504 3297	1 581	10		5 349 5 350 0
			404		269				1 581			6 419 4 420 0
37	0	0.553 6338		0.832 7602		0.664 8178		1.504 1716		0	23	
	10	6742	404	7334	268	8877	699	.504 0134	1 582	50		7 489 3 490 0
	20	7146	403	7065	268	9576	699	.503 8553	1 582	40		8 559 2 560 0
	30	7549	404	6797	268	0.665 0275	700	.503 6971	1 581	30		9 629 1 630 0
	40	7953	404	6529	269	0975	699	.503 5390	1 580	20		
	50	8357	403	6260	269	1674	699	.503 3810	1 581	10		Cotangent
			403		269				1 581			1590 1580
38	0	0.553 8760		0.832 5991		0.665 2373		1.503 2229		0	22	
	10	9164	404	5723	268	3073	700	.503 0649	1 580	50		1 150 0 158 0
	20	9568	404	5454	269	3772	699	.502 9069	1 580	40		2 318 0 316 0
	30	9971	403	5186	268	4472	700	.502 7489	1 580	30		3 477 0 474 0
	40	0.554 0375	404	4917	269	5171	699	.502 5910	1 579	20		4 636 0 632 0
	50	0778	404	4649	269	5871	699	.502 4331	1 579	10		5 795 0 790 0
			404		269				1 580			6 954 0 948 0
39	0	0.554 1182		0.832 4380		0.665 6570		1.502 2751		0	21	
	10	1586	404	4111	269	7270	700	.502 1173	1 578	50		7 1113 0 1106 0
	20	1989	403	3843	268	7970	700	.501 9594	1 579	40		8 1272 0 1264 0
	30	2393	404	3574	269	8669	699	.501 8016	1 578	30		9 1431 0 1422 0
	40	2796	403	3305	269	9369	700	.501 6437	1 579	20		1570
	50	3200	403	3037	268	0.666 0069	700	.501 4860	1 577	10		1 157 0
			403		269				1 578			2 314 0
40	0	0.554 3603		0.832 2768		0.666 0769		1.501 3282		0	20	
												3 471 0
												4 628 0
												5 785 0
												6 942 0
												7 1099 0
												8 1250 0
												9 1413 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

56° 20'

56° 10'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff.			Proportional Parts
40	0	0.554 3803		0.832 2768		0.666 0769		1.501 3282		0	20	
	10	4007	404	2499	269	1469	700	.501 1704	1 578	50		Sine
	20	4410	403	2230	269	2169	700	.501 0127	1 577	40		402 403 404
	30	4814	404	1961	269	2869	700	.500 8550	1 577	30		1 40 2 40 3 40 4
	40	5217	403	1693	268	3569	700	.500 6973	1 577	20		2 80 4 80 6 80 8
	50	5621	404	1424	269	4269	700	.500 5397	1 576	10		3 120 6 120 9 121 2
			403		269		700		1 576			4 160 8 161 2 161 6
41	0	0.554 6024		0.832 1155		0.666 4969		1.500 3821		0	19	
	10	6427	403	0886	269	5669	700	.500 2244	1 577	50		5 201 0 201 5 202 0
	20	6831	404	0617	269	6370	701	.500 0669	1 575	40		6 241 2 241 8 242 4
	30	7234	403	0348	269	7070	700	.499 9093	1 576	30		7 281 4 282 1 282 8
	40	7638	404	0079	269	7770	701	.499 7518	1 575	20		8 321 6 322 4 323 2
	50	8041	403	0.831 9810	269	8471	701	.499 5942	1 576	10		9 361 8 362 7 363 6
			403		269		700		1 575			
42	0	0.554 8444		0.831 9541		0.666 9171		1.499 4367		0	18	
	10	8848	404	9272	269	9871	700	.499 2793	1 574	50		Cosine
	20	9251	403	9003	269	10572	701	.499 1218	1 575	40		268 269 270
	30	9654	404	8734	269	1273	701	.498 9644	1 574	30		1 26 8 26 9 27 0
	40	0.555 0058	403	8465	269	1973	700	.498 8070	1 574	20		2 53 6 53 8 54 0
	50	0461	404	8196	269	2674	700	.498 6496	1 574	10		3 80 4 80 7 81 0
			403		268		700		1 573			4 107 2 107 6 108 0
43	0	0.555 0864		0.831 7927		0.667 3374		1.498 4923		0	17	
	10	1267	403	7658	269	4075	701	.498 3349	1 574	50		5 134 0 134 5 135 0
	20	1671	404	7389	269	4776	701	.498 1776	1 573	40		6 160 8 161 4 162 0
	30	2074	403	7119	270	5477	701	.498 0203	1 573	30		7 187 6 188 3 189 0
	40	2477	403	6850	269	6178	701	.497 8631	1 572	20		8 214 4 215 2 216 0
	50	2880	403	6581	269	6879	701	.497 7058	1 573	10		9 241 2 242 1 243 0
			403		269		701		1 572			
44	0	0.555 3283		0.831 6312		0.667 7580		1.497 5486		0	16	
	10	3687	404	6043	269	8281	701	.497 3914	1 572	50		Tangent
	20	4090	403	5773	269	8982	701	.497 2342	1 572	40		700 701
	30	4493	404	5504	269	9683	701	.497 0771	1 571	30		1 70 0 70 1
	40	4896	403	5235	269	10384	701	.496 9200	1 571	20		2 140 0 140 2
	50	5299	403	4965	269	1085	701	.496 7628	1 570	10		3 210 0 210 3
			403		269		701		1 570			4 280 0 280 4
45	0	0.555 5702		0.831 4696		0.668 1786		1.496 6058		0	15	
	10	6105	403	4427	269	2488	702	.496 4487	1 571	50		5 350 0 350 5
	20	6509	404	4157	270	3189	701	.496 2917	1 570	40		6 420 0 420 6
	30	6912	403	3888	269	3890	701	.496 1347	1 570	30		7 190 0 490 7
	40	7315	403	3619	269	4592	702	.495 9777	1 570	20		8 560 0 560 8
	50	7718	403	3349	270	5293	702	.495 8207	1 570	10		9 630 0 630 9
			403		269		702		1 570			
46	0	0.555 8121		0.831 3080		0.668 5995		1.495 6637		0	14	
	10	8524	403	2810	270	6696	701	.495 5068	1 569	50		702 703
	20	8927	403	2541	269	7398	702	.495 3499	1 569	40		1 70 2 70 3
	30	9330	403	2271	270	8100	701	.495 1930	1 569	30		2 140 4 140 6
	40	9733	403	2002	269	8801	701	.495 0362	1 568	20		3 210 6 210 9
	50	0.556 0136	403	1732	270	9503	702	.494 8794	1 568	10		4 280 8 281 2
			403		269		702		1 569			5 351 0 351 5
47	0	0.556 0639		0.831 1463		0.669 0205		1.494 7225		0	13	
	10	0942	403	1193	270	0907	702	.494 5658	1 567	50		6 421 2 421 8
	20	1345	402	0923	269	1609	702	.494 4090	1 568	40		7 491 4 492 1
	30	1747	403	0654	270	2310	701	.494 2523	1 568	30		8 561 6 562 4
	40	2150	403	0384	270	3012	702	.494 0955	1 567	20		9 631 8 632 7
	50	2553	403	0114	269	3714	703	.493 9388	1 566	10		
			403		269		703		1 566			
48	0	0.556 2956		0.830 9845		0.669 4417		1.493 7822		0	12	
	10	3359	403	9575	270	5119	702	.493 6255	1 567	50		1580 1570
	20	3762	403	9305	269	5821	702	.493 4689	1 566	40		1 158 0 157 0
	30	4165	403	9036	270	6523	702	.493 3123	1 566	30		2 316 0 314 0
	40	4568	402	8766	270	7225	703	.493 1557	1 566	20		3 474 0 471 0
	50	4970	403	8496	270	7928	702	.492 9991	1 565	10		4 632 0 628 0
			403		270		702		1 565			5 790 0 785 0
49	0	0.556 5373		0.830 8226		0.669 8630		1.492 8426		0	11	
	10	5776	403	7956	270	9332	703	.492 6861	1 565	50		6 948 0 942 0
	20	6179	402	7686	269	10035	703	.492 5296	1 565	40		7 1106 0 1099 0
	30	6581	403	7417	270	10737	702	.492 3731	1 564	30		8 1261 0 1256 0
	40	6984	403	7147	270	11440	702	.492 2167	1 564	20		9 1422 0 1413 0
	50	7387	403	6877	270	12142	703	.492 0603	1 564	10		
			403		270		703		1 564			1560
												1 156 0
												2 312 0
												3 468 0
												4 621 0
												5 780 0
												6 936 0
												7 1092 0
												8 1248 0
												9 1404 0
50	0	0.556 7790		0.830 6607		0.670 2845		1.491 9039		0	10	
												Proportional Parts
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	"	

33° 50'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
50	0	0 556 7790		0.830 6607		0.670 2845		1 491 9039		0	10	
	10	8192	402	6337	270	3547	702	.491 7475	1 564	50		Sine
	20	8595	403	6067	270	4250	703	.491 5911	1 564	40		402 403
	30	8998	403	5797	270	4953	703	.491 4348	1 563	30		1 40 2 40 3
	40	9400	402	5527	270	5656	703	.491 2785	1 563	20		2 80 4 80 6
	50	9803	403	5257	270	6359	703	.491 1222	1 563	10		3 120 6 120 9
			403		270		702		1 563			4 160 8 161 2
51	0	0.557 0206		0.830 4987		0.670 7061		1.490 9659		0	9	
	10	0608	402	4717	270	7764	703	.490 8097	1 562	50		5 201 0 201 5
	20	1011	403	4447	270	8467	703	.490 6535	1 562	40		6 241 2 241 8
	30	1414	403	4177	270	9170	703	.490 4973	1 562	30		7 281 4 282 1
	40	1816	402	3907	271	9873	703	.490 3411	1 562	20		8 321 6 322 4
	50	2219	402	3636	270	0.671 0577	704	.490 1849	1 562	10		9 361 8 362 7
			402		270		703		1 561			
52	0	0 557 2621		0 830 3366		0 671 1280		1 490 0288		0	8	
	10	3024	403	3096	270	1983	703	.489 8727	1 561	50		Cosine
	20	3426	402	2826	270	2686	703	.489 7166	1 561	40		270 271
	30	3829	403	2556	270	3389	703	.489 5605	1 561	30		1 27 0 27 1
	40	4231	402	2285	271	4093	704	.489 4045	1 560	20		2 54 0 54 2
	50	4634	403	2015	270	4796	703	.489 2485	1 560	10		3 81 0 81 3
			402		270		704		1 560			4 108 0 108 4
53	0	0.557 5036		0.830 1745		0.671 5500		1.489 0925		0	7	
	10	5439	403	1475	270	6203	703	.488 9365	1 560	50		5 135 0 135 5
	20	5841	402	1204	271	6907	704	.488 7806	1 559	40		6 162 0 162 6
	30	6244	402	0934	270	7610	703	.488 6246	1 560	30		7 189 0 189 7
	40	6646	402	0664	270	8314	704	.488 4687	1 559	20		8 216 0 216 8
	50	7049	403	0393	271	9017	703	.488 3129	1 558	10		9 243 0 243 9
			402		270		704		1 559			
54	0	0.557 7451		0 830 0123		0.671 9721		1.488 1570		0	6	
	10	7853	402	0 829 9852	271	0.672 0425	704	.488 0012	1 558	50		Tangent
	20	8256	403	9582	270	1129	704	.487 8453	1 559	40		702 703
	30	8658	402	9312	270	1833	704	.487 6895	1 558	30		1 70 2 70 3
	40	9061	403	9041	271	2536	703	.487 5338	1 557	20		2 140 4 140 6
	50	9463	402	8771	270	3240	704	.487 3780	1 558	10		3 210 6 210 9
			402		270		704		1 557			4 280 8 281 2
55	0	0 557 9865		0 829 8500		0.672 3944		1.487 2223		0	5	
	10	0.558 0268	403	8230	271	4648	704	.487 0666	1 557	50		5 351 0 351 5
	20	0670	402	7959	271	5352	704	.486 9109	1 557	40		6 421 2 421 8
	30	1072	402	7688	271	6057	705	.486 7553	1 556	30		7 491 4 492 1
	40	1474	402	7418	271	6761	704	.486 5996	1 556	20		8 561 6 562 4
	50	1877	403	7147	271	7465	704	.486 4440	1 556	10		9 631 8 632 7
			402		270		704		1 556			
56	0	0 558 2279		0.829 6877		0.672 8169		1.486 2884		0	4	
	10	2681	402	6606	271	8873	704	.486 1329	1 555	50		704 705 706
	20	3083	402	6335	271	9578	705	.485 9773	1 556	40		1 70 4 70 5 70 6
	30	3486	403	6065	270	0.673 0282	704	.485 8218	1 555	30		2 140 8 141 0 141 2
	40	3888	402	5794	271	0987	705	.485 6663	1 555	20		3 211 2 211 5 211 8
	50	4290	402	5523	271	1691	704	.485 5108	1 555	10		4 281 6 282 0 282 4
			402		271		705		1 554			5 352 0 352 5 353 0
57	0	0.558 4692		0.829 5252		0.673 2396		1.485 3554		0	3	
	10	5094	402	4982	270	3100	704	.485 1999	1 555	50		6 422 4 423 0 423 6
	20	5496	402	4711	271	3805	705	.485 0445	1 554	40		7 492 8 493 5 494 2
	30	5899	402	4440	271	4510	704	.484 8891	1 553	30		8 563 2 564 0 564 8
	40	6301	402	4169	271	5214	705	.484 7338	1 554	20		9 633 6 634 5 635 4
	50	6703	402	3898	270	5919	705	.484 5784	1 553	10		
			402		270		705		1 553			
58	0	0.558 7105		0.829 3628		0.673 6624		1.484 4231		0	2	
	10	7507	402	3357	271	7329	705	.484 2678	1 553	50		Cotangent
	20	7909	402	3086	271	8034	705	.484 1125	1 553	40		1570 1560
	30	8311	402	2815	271	8739	705	.483 9573	1 552	30		1 157 0 156 0
	40	8713	402	2544	271	9444	705	.483 8020	1 552	20		2 314 0 312 0
	50	9115	402	2273	271	0 674 0149	705	.483 6468	1 552	10		3 471 0 468 0
			402		271		705		1 552			4 628 0 621 0
59	0	0.558 9517		0.829 2002		0.674 0854		1.483 4916		0	1	
	10	9919	402	1731	271	1559	705	.483 3365	1 551	50		5 785 0 780 0
	20	0 559 0321	402	1460	271	2264	705	.483 1813	1 552	40		6 942 0 936 0
	30	0723	402	1189	271	2969	705	.483 0262	1 551	30		7 1099 0 1092 0
	40	1125	402	0918	271	3674	705	.482 8711	1 551	20		8 1256 0 1248 0
	50	1527	402	0647	271	4380	706	.482 7160	1 551	10		9 1413 0 1404 0
			402		271		705		1 550			
60	0	0.559 1929		0.829 0376		0.674 5085		1.482 5610		0	0	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	"	Proportional Parts

56° 0'

34° 0'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
0	0	0.559 1929		0.829 0376		0.674 5085		1.482 5610		0	60	
	10	2331	402	0105	271	5791	706	482 4059	1 551	50		Sine
	20	2733	402	0.828 9833	272	6496	705	482 2509	1 550	40		401 402
	30	3135	402	9562	271	7202	706	482 0959	1 550	30		1 40 1 40 2
	40	3537	402	9291	271	7907	705	481 9410	1 549	20		2 80 2 80 4
	50	3939	401	9020	271	8613	706	481 7860	1 550	10		3 120 3 120 6
							705		1 549			4 160 4 160 8
1	0	0.559 4340		0.828 8749		0.674 9318		1.481 6311		0	59	
	10	4742	402	8478	271	0.675 0024	706	481 4762	1 549	50		5 200 5 201 0
	20	5144	402	8206	272	0730	706	481 3213	1 549	40		6 240 6 241 2
	30	5546	402	7935	271	1436	706	481 1665	1 548	30		7 280 7 281 4
	40	5948	401	7664	271	2141	705	481 0117	1 548	20		8 320 8 321 6
	50	6349	402	7392	272	2847	706	480 8568	1 549	10		9 360 9 361 8
							705		1 547			
2	0	0.559 6761		0.828 7121		0.675 3553		1.480 7021		0	58	
	10	7153	402	6850	271	4259	706	480 5473	1 548	50		Cosine
	20	7555	402	6578	272	4965	706	480 3926	1 547	40		271 272 273
	30	7956	401	6307	271	5671	706	480 2378	1 548	30		1 27 1 27 2 27 3
	40	8358	402	6036	271	6377	706	480 0831	1 547	20		2 54 2 54 4 54 6
	50	8760	402	5764	272	7083	706	479 9285	1 546	10		3 81 3 81 6 81 9
							707		1 547			4 108 4 108 8 109 2
3	0	0.559 9162		0.828 5493		0.675 7790		1.479 7738		0	57	
	10	9563	401	5221	272	8496	706	479 6192	1 546	50		5 135 5 136 0 136 5
	20	9965	402	4950	271	9202	706	479 4646	1 546	40		6 162 6 163 2 163 8
	30	0 560 0367		4678	272	9908	706	479 3100	1 546	30		7 189 7 190 4 191 1
	40	0768	401	4407	271	0 676 0615	707	479 1554	1 546	20		8 216 8 217 6 218 4
	50	1170	402	4135	272	1321	706	479 0009	1 545	10		9 243 9 244 8 245 7
							707		1 546			
4	0	0.560 1672		0.828 3864		0 676 2028		1.478 8463		0	56	
	10	1973	401	3592	272	2734	706	478 6918	1 545	50		Tangent
	20	2375	402	3320	272	3441	707	478 5374	1 544	40		705 706
	30	2776	402	3049	271	4147	706	478 3829	1 545	30		1 70 5 70 6
	40	3178	401	2777	272	4854	707	478 2285	1 544	20		2 141 0 141 2
	50	3579	402	2506	271	5561	707	478 0741	1 544	10		3 211 5 211 8
							707		1 544			4 282 0 282 4
5	0	0.560 3981		0.828 2234		0.676 6268		1.477 9197		0	55	
	10	4383	402	1962	272	6974	706	477 7653	1 544	50		5 352 5 353 0
	20	4784	401	1690	272	7681	707	477 6110	1 543	40		6 423 0 423 6
	30	5186	402	1419	271	8388	707	477 4567	1 543	30		7 493 5 494 2
	40	5587	401	1147	272	9095	707	477 3024	1 543	20		8 564 0 564 8
	50	5988	402	0875	272	9802	707	477 1481	1 543	10		9 634 5 635 4
							707		1 543			
6	0	0 560 6390		0.828 0603		0.677 0509		1.476 9938		0	54	
	10	6791	401	0332	271	1216	707	476 8396	1 542	50		707 708 709
	20	7193	402	0060	272	1923	707	476 6854	1 542	40		1 70 7 70 8 70 9
	30	7594	401	0.827 9788	272	2630	707	476 5312	1 542	30		2 141 4 141 6 141 8
	40	7996	402	9516	272	3338	708	476 3770	1 542	20		3 212 1 212 4 212 7
	50	8397	401	9244	272	4045	707	476 2229	1 541	10		4 282 8 283 2 283 6
							707		1 541			5 353 5 354 0 354 5
7	0	0 560 8798		0.827 8972		0.677 4762		1.476 0688		0	53	
	10	9200	402	8700	272	5459	707	475 9147	1 541	50		6 424 2 424 8 425 4
	20	9601	401	8428	272	6167	708	475 7606	1 541	40		7 494 9 495 6 496 3
	30	0 561 0003		8156	272	6874	707	475 6065	1 540	30		8 565 6 566 4 567 2
	40	0404	401	7884	272	7582	707	475 4525	1 540	20		9 636 3 637 2 638 1
	50	0805	401	7612	272	8289	708	475 2985	1 540	10		
							708		1 540			
8	0	0 561 1206		0.827 7340		0.677 8997		1.475 1445		0	52	
	10	1608	402	7068	272	9705	708	474 9905	1 540	50		Cotangent
	20	2009	401	6796	272	0 678 0412	707	474 8366	1 539	40		1550 1540
	30	2410	401	6524	272	1120	708	474 6826	1 540	30		1 155 0 154 0
	40	2812	402	6252	272	1828	708	474 5287	1 539	20		2 310 0 308 0
	50	3213	401	5980	272	2536	707	474 3749	1 538	10		3 465 0 462 0
							707		1 538			4 620 0 616 0
9	0	0 561 3614		0.827 5708		0.678 3243		1.474 2210		0	51	
	10	4015	401	5436	272	3951	708	474 0672	1 538	50		5 775 0 770 0
	20	4416	401	5163	273	4659	708	473 9134	1 538	40		6 930 0 924 0
	30	4818	402	4891	272	5367	708	473 7596	1 538	30		7 1085 0 1078 0
	40	5219	401	4619	272	6075	708	473 6058	1 538	20		8 1240 0 1232 0
	50	5620	401	4347	273	6783	709	473 4520	1 537	10		9 1395 0 1386 0
												1530
10	0	0.561 6021		0.827 4074		0.678 7492		1.473 2983		0	50	
												1 153 0
												2 306 0
												3 450 0
												4 612 0
												5 765 0
												6 918 0
												7 1071 0
												8 1224 0
												9 1377 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

55° 50'

34° 10'

	'	"	Sine	Diff	Cosine	Diff	Tangent	Diff.	Cotangent	Diff			Proportional Parts
10	0	0.561 6021			0.827 4074		0.678 7492		1.473 2983		0	50	
	10	6422	401		3802	272	8200	708	.473 1446	1 537	50		Sine
	20	6823	401		3530	272	8908	708	.472 9909	1 537	40		400 401 402
	30	7224	401		3258	272	9616	708	.472 8373	1 536	30		1 40 0 40 1 40 2
	40	7626	402		2985	273	0.679 0325	709	.472 6836	1 537	20		2 80 0 80 2 80 4
	50	8027	401		2713	272	1033	708	.472 5300	1 536	10		3 120 0 120 3 120 6
11	0	0.561 8428			0.827 2440		0.679 1741		1.472 3764		0	49	
	10	8829	401		2168	272	2450	709	.472 2229	1 535	50		4 160 0 160 4 160 8
	20	9230	401		1896	272	3158	708	.472 0693	1 536	40		5 200 0 200 5 201 0
	30	9631	401		1623	273	3867	709	.471 9158	1 535	30		6 240 0 240 6 241 2
	40	0.562 0032	401		1351	272	4576	709	.471 7623	1 535	20		7 280 0 280 7 281 4
	50	0433	401		1078	272	5284	708	.471 6088	1 535	10		8 320 0 320 8 321 6
12	0	0.562 0834			0.827 0806		0.679 5993		1.471 4553		0	48	
	10	1235	401		0533	273	6702	709	.471 3019	1 534	50		Cosine
	20	1636	401		0261	272	7411	709	.471 1485	1 534	40		272 273 274
	30	2037	401		0.826 9988	273	8119	708	.470 9951	1 534	30		1 27 2 27 3 27 4
	40	2438	401		9716	272	8828	709	.470 8417	1 534	20		2 54 4 54 6 54 8
	50	2839	400		9443	273	9537	709	.470 6883	1 534	10		3 81 6 81 9 82 2
13	0	0.562 3239			0.826 9170		0.680 0248		1.470 5360		0	47	
	10	3640	401		8898	272	0955	709	.470 3817	1 533	50		4 108 8 109 2 109 6
	20	4041	401		8625	273	1664	709	.470 2284	1 533	40		5 136 0 136 5 137 0
	30	4442	401		8352	273	2373	709	.470 0751	1 533	30		6 163 2 163 8 164 4
	40	4843	401		8080	272	3083	710	.469 9219	1 532	20		7 190 4 191 1 191 8
	50	5244	401		7807	273	3792	709	.469 7687	1 532	10		8 217 6 218 4 219 2
14	9	0.562 5645			0.826 7534		0.680 4501		1.469 6155		0	46	
	10	6045	400		7262	272	5210	709	.469 4623	1 532	50		Tangent
	20	6446	401		6989	273	5920	710	.469 3091	1 532	40		708 709
	30	6847	401		6716	273	6629	709	.469 1560	1 531	30		1 70 8 70 9
	40	7248	401		6443	273	7339	710	.469 0029	1 531	20		2 141 6 141 8
	50	7649	400		6170	273	8048	709	.468 8498	1 531	10		3 212 4 212 7
15	0	0.562 8049			0.826 5897		0.680 8758		1.468 6967		0	45	
	10	8450	401		5625	272	9467	709	.468 5437	1 530	50		4 283 2 283 6
	20	8851	401		5352	273	0.681 0177	710	.468 3906	1 531	40		5 354 0 354 5
	30	9251	400		5079	273	0887	710	.468 2376	1 530	30		6 424 8 425 4
	40	9652	401		4806	273	1596	710	.468 0847	1 530	20		7 495 6 496 3
	50	0.563 0053	400		4533	273	2306	710	.467 9317	1 529	10		8 566 4 567 2
16	0	0.563 0453			0.826 4280		0.681 3016		1.467 7788		0	44	
	10	0854	401		3987	273	3726	710	.467 6258	1 530	50		9 637 2 638 1
	20	1255	401		3714	273	4436	710	.467 4729	1 529	40		Tangent
	30	1655	400		3441	273	5146	710	.467 3201	1 528	30		710 711
	40	2056	401		3168	273	5856	710	.467 1672	1 529	20		1 71 0 71 1
	50	2457	400		2895	273	6566	710	.467 0144	1 528	10		2 142 0 142 2
17	0	0.563 2857			0.826 2622		0.681 7276		1.466 8616		0	43	
	10	3258	401		2349	273	7986	710	.466 7088	1 528	50		3 213 0 213 3
	20	3658	401		2076	274	8696	710	.466 5560	1 527	40		4 284 0 284 4
	30	4059	401		1802	273	9406	711	.466 4033	1 527	30		5 355 0 355 5
	40	4459	401		1529	273	0.682 0117	711	.466 2506	1 527	20		6 426 0 426 6
	50	4860	400		1256	273	0827	710	.466 0979	1 527	10		7 497 0 497 7
18	0	0.563 5260			0.826 0983		0.682 1537		1.465 9452		0	42	
	10	5661	401		0710	273	2248	711	.465 7925	1 527	50		8 568 0 568 8
	20	6061	401		0436	274	2958	710	.465 6399	1 526	40		9 639 0 639 9
	30	6462	400		0163	273	3669	711	.465 4873	1 526	30		Cotangent
	40	6862	401		0.825 9890	273	4380	711	.465 3347	1 526	20		1540 1530
	50	7263	400		9617	274	5090	710	.465 1821	1 525	10		1 154 0 153 0
19	0	0.563 7663			0.825 9343		0.682 5801		1.465 0296		0	41	
	10	8064	401		9070	273	6512	711	.464 8770	1 526	50		2 308 0 306 0
	20	8464	400		8797	274	7222	710	.464 7245	1 525	40		3 402 0 459 0
	30	8864	400		8523	273	7933	711	.464 5720	1 525	30		4 616 0 612 0
	40	9265	401		8250	273	8644	711	.464 4196	1 524	20		5 770 0 765 0
	50	9665	401		7977	274	9355	711	.464 2671	1 524	10		6 924 0 918 0
20	0	0.564 0066			0.825 7703		0.683 0066		1.464 1147		0	40	
													7 1078 0 1071 0
													8 1232 0 1224 0
													9 1386 0 1377 0
													1520
													1 152 0
													2 304 0
													3 456 0
													4 608 0
													5 760 0
													6 912 0
													7 1064 0
													8 1216 0
													9 1368 0
			Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

55° 40'

34° 20'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
20	0	0.564 0066		0.825 7703		0.683 0066		1.464 1147		0	40	
	10	0466	400	7430	273	0777	711	.463 9623	1 524	50		Sine
	20	0866	400	7156	274	1488	711	.463 8100	1 523	40		399 400 401
	30	1267	401	6883	273	2199	711	.463 6576	1 524	30		1 39 9 40 0 40 1
	40	1667	400	6609	274	2910	711	.463 5053	1 523	20		2 79 8 80 0 80 2
	50	2067	400	6336	273	3621	711	.463 3530	1 523	10		3 119 7 120 0 120 3
21	0	0.564 2467		0.825 6062		0.683 4333		1.463 2007		0	39	
	10	2868	401	5789	273	5044	711	.463 0484	1 523	50		4 159 6 160 0 160 4
	20	3268	400	5515	274	5755	711	.462 8962	1 522	40		5 199 5 200 0 200 5
	30	3668	400	5241	274	6467	712	.462 7439	1 523	30		6 239 4 240 0 240 6
	40	4068	400	4968	273	7178	711	.462 5917	1 522	20		7 279 3 280 0 280 7
	50	4469	401	4694	274	7889	711	.462 4396	1 521	10		8 319 2 320 0 320 8
22	0	0.564 4869		0.825 4420		0.683 8601		1.462 2874		0	38	
	10	5269	400	4147	273	9313	712	.462 1353	1 521	50		Cosine
	20	5669	400	3873	274	0024	711	.461 9831	1 522	40		273 274 275
	30	6069	400	3599	273	0736	712	.461 8310	1 521	30		1 27 3 27 4 27 5
	40	6469	401	3326	274	1448	712	.461 6790	1 520	20		2 54 6 54 8 55 0
	50	6870	400	3052	274	2159	711	.461 5269	1 521	10		3 81 9 82 2 82 5
23	0	0.564 7270		0.825 2778		0.684 2871		1.461 3749		0	37	
	10	7670	400	2504	274	3583	712	.461 2229	1 520	50		4 109 2 109 6 110 0
	20	8070	400	2230	274	4295	712	.461 0709	1 520	40		5 136 5 137 0 137 5
	30	8470	400	1957	273	5007	712	.460 9189	1 520	30		6 163 8 164 4 165 0
	40	8870	400	1683	274	5719	712	.460 7670	1 519	20		7 191 1 191 8 192 5
	50	9270	400	1409	274	6431	712	.460 6151	1 519	10		8 218 4 219 2 220 0
24	0	0.564 9670		0.825 1135		0.684 7143		1.460 4632		0	36	
	10	0.565 0070	400	0861	274	7855	712	.460 3113	1 519	50		Tangent
	20	0470	400	0587	274	8567	712	.460 1594	1 518	40		711 712
	30	0870	400	0313	274	9279	712	.460 0076	1 518	30		1 71 1 71 2
	40	1270	400	0039	274	9992	713	.459 8558	1 518	20		2 142 2 142 4
	50	1670	400	0.824 9765	274	0.685 0704	712	.459 7040	1 518	10		3 213 3 213 6
25	0	0.565 2070		0.824 9491		0.685 1416		1.459 5522		0	35	
	10	2470	400	9217	274	2129	713	.459 4005	1 517	50		4 284 4 284 8
	20	2870	400	8943	274	2841	712	.459 2487	1 518	40		5 355 5 356 0
	30	3270	400	8669	274	3554	713	.459 0970	1 517	30		6 426 6 427 2
	40	3670	400	8395	274	4266	712	.458 9453	1 517	20		7 497 7 498 4
	50	4070	399	8121	274	4979	713	.458 7937	1 516	10		8 568 8 569 6
26	0	0.565 4469		0.824 7847		0.685 5692		1.458 6420		0	34	
	10	4869	400	7573	274	6404	712	.458 4904	1 516	50		9 639 9 640 8
	20	5269	400	7298	275	7117	713	.458 3388	1 516	40		713 714
	30	5669	400	7024	274	7830	713	.458 1872	1 516	30		1 71 3 71 4
	40	6069	400	6750	274	8543	713	.458 0357	1 515	20		2 142 6 142 8
	50	6469	399	6476	274	9256	713	.457 8841	1 516	10		3 213 9 214 2
27	0	0.565 6868		0.824 6202		0.685 9969		1.457 7326		0	33	
	10	7268	400	5927	275	0.686 0682	713	.457 5811	1 515	50		4 285 2 285 6
	20	7668	400	5653	274	1395	713	.457 4297	1 515	40		5 356 5 357 0
	30	8068	400	5379	274	2108	713	.457 2782	1 515	30		6 427 8 428 4
	40	8467	399	5104	275	2821	713	.457 1268	1 514	20		7 499 1 499 8
	50	8867	400	4830	274	3534	713	.456 9754	1 514	10		8 570 4 571 2
28	0	0.565 9267		0.824 4556		0.686 4247		1.456 8240		0	32	
	10	9667	400	4281	275	4960	713	.456 6726	1 514	50		9 641 7 642 6
	20	0.566 0066	399	4007	274	5674	714	.456 5213	1 513	40		Cotangent
	30	0466	400	3733	274	6387	713	.456 3700	1 513	30		1530 1520
	40	0866	400	3458	275	7101	714	.456 2187	1 513	20		1 153 0 152 0
	50	1265	399	3184	274	7814	713	.456 0674	1 513	10		2 306 0 304 0
29	0	0.566 1665		0.824 2909		0.686 8528		1.455 9161		0	31	
	10	2064	399	2635	274	9241	713	.455 7649	1 512	50		3 459 0 456 0
	20	2464	400	2360	275	9955	714	.455 6137	1 512	40		4 612 0 608 0
	30	2864	400	2086	274	0.687 0668	713	.455 4625	1 512	30		5 765 0 760 0
	40	3263	399	1811	275	1382	714	.455 3113	1 512	20		6 918 0 912 0
	50	3663	399	1536	274	2096	714	.455 1602	1 511	10		7 1071 0 1064 0
30	0	0.566 4062		0.824 1262		0.687 2810		1.455 0090		0	30	
												8 1224 0 1216 0
												9 1377 0 1368 0
												1510
												1 151 0
												2 302 0
												3 453 0
												4 604 0
												5 755 0
												6 906 0
												7 1057 0
												8 1208 0
												9 1359 0
												Proportional Parts

55° 30'

34° 30'

	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
30	0	0.566 4062		0.824 1262		0.687 2810		1.455 0090		0	30	
	10	4462	400	0987	275	3523	713	.454 8579	1511	50		
	20	4861	399	0713	274	4237	714	.454 7068	1511	40		
	30	5261	400	0438	275	4951	714	.454 5558	1510	30		
	40	5660	399	0163	275	5665	714	.454 4047	1511	20		
	50	6060	400	0823 9889	274	6379	714	.454 2537	1510	10		
			399		275				1510			
31	0	0.566 6459		0.823 9614		0.687 7093		1 454 1027		0	29	
	10	6859	400	9339	275	7807	714	.453 9517	1510	50		
	20	7258	399	9064	275	8522	715	.453 8008	1509	40		
	30	7658	400	8790	274	9236	714	.453 6498	1510	30		
	40	8057	399	8515	275	9950	714	.453 4989	1509	20		
	50	8457	400	8240	275	0.688 0664	715	.453 3480	1509	10		
			399		275				1509			
32	0	0.566 8856		0.823 7965		0.688 1379		1.453 1971		0	28	
	10	9255	399	7690	275	2093	714	.453 0463	1508	50		
	20	9655	400	7416	274	2808	715	.452 8955	1508	40		
	30	0 567 0054	399	7141	275	3522	714	.452 7446	1509	30		
	40	0453	399	6866	275	4237	715	.452 5939	1507	20		
	50	0853	400	6591	275	4951	714	.452 4431	1508	10		
			399		275				1508			
33	0	0.567 1252		0.823 6316		0.688 5666		1.452 2923		0	27	
	10	1651	399	6041	275	6381	715	.452 1416	1507	50		
	20	2051	400	5766	275	7095	714	.451 9909	1507	40		
	30	2450	399	5491	275	7810	715	.451 8402	1507	30		
	40	2849	399	5216	275	8525	715	.451 6896	1506	20		
	50	3248	400	4941	275	9240	715	.451 5389	1507	10		
					275				1506			
34	0	0.567 3648		0.823 4666		0 688 9955		1.451 3883		0	26	
	10	4047	399	4391	275	0 689 0670	715	.451 2377	1506	50		
	20	4446	399	4116	275	1385	715	.451 0871	1506	40		
	30	4845	399	3841	275	2100	715	.450 9366	1505	30		
	40	5244	399	3565	276	2815	715	.450 7860	1506	20		
	50	5644	400	3290	275	3530	715	.450 6355	1505	10		
			399		275				1505			
35	0	0.567 6043		0 823 3015		0.689 4246		1.450 4850		0	25	
	10	6442	399	2740	275	4961	715	.450 3346	1504	50		
	20	6841	399	2465	275	5676	715	.450 1841	1505	40		
	30	7240	399	2189	276	6392	716	.450 0337	1504	30		
	40	7639	399	1914	275	7107	715	.449 8833	1504	20		
	50	8038	399	1639	275	7822	715	.449 7329	1504	10		
					275				1504			
36	0	0 567 8437		0 823 1364		0.689 8538		1.449 5825		0	24	
	10	8837	400	1088	276	9253	715	.449 4322	1503	50		
	20	9236	399	0813	275	9969	716	.449 2819	1503	40		
	30	9635	399	0538	276	0 690 0685	715	.449 1316	1503	30		
	40	0.568 0034	399	0262	276	1400	715	.448 9813	1503	20		
	50	0433	399	0822 9987	275	2116	716	.448 8310	1503	10		
					275				1502			
37	0	0.568 0832		0.822 9712		0 690 2832		1.448 6808		0	23	
	10	1231	399	9436	276	3548	716	.448 5306	1502	50		
	20	1630	399	9161	276	4264	716	.448 3804	1502	40		
	30	2029	399	8885	276	4980	716	.448 2302	1502	30		
	40	2427	398	8610	275	5696	716	.448 0800	1502	20		
	50	2826	399	8334	276	6412	716	.447 9299	1501	10		
					275				1501			
38	0	0.568 3225		0.822 8059		0.690 7128		1.447 7798		0	22	
	10	3624	399	7783	275	7844	716	.447 6297	1501	50		
	20	4023	399	7508	276	8560	716	.447 4796	1501	40		
	30	4422	399	7232	276	9276	716	.447 3296	1500	30		
	40	4821	399	6956	275	9993	717	.447 1795	1501	20		
	50	5220	399	6681	276	0.691 0709	716	.447 0295	1500	10		
					276				1499			
39	0	0.568 5619		0.822 6405		0.691 1425		1.446 8796		0	21	
	10	6017	398	6130	275	2142	717	.446 7296	1500	50		
	20	6416	399	5854	276	2858	716	.446 5796	1500	40		
	30	6815	399	5578	276	3575	717	.446 4297	1499	30		
	40	7214	399	5302	275	4291	716	.446 2798	1499	20		
	50	7612	398	5027	276	5008	717	.446 1299	1498	10		
					276				1498			
40	0	0.568 8011		0.822 4751		0 691 5725		1.445 9801		0	20	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

55° 20'

34° 40'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
40	0	0.568 8011		0.822 4761		0.691 5725		1.445 9801		0	20	
	10	8410	399	4475	276	6441	716	.445 8302	1 499	50		Sine
	20	8809	399	4199	276	7158	717	.445 6804	1 498	40		
	30	9207	398	3924	275	7875	717	.445 5306	1 498	30		398 399
	40	9606	399	3648	276	8592	717	.445 3809	1 497	20		1 39 8 39 9
	50	0.569 0005	398	3372	276	9309	717	.445 2311	1 498	10		2 79 6 79 8
									1 497			3 119 4 119 7
41	0	0.569 0403		0.822 3096		0.692 0026		1.445 0814		0	19	4 159 2 159 6
	10	0802	399	2820	276	0743	717	.444 9317	1 497	50		5 199 0 199 5
	20	1201	399	2544	276	1460	717	.444 7820	1 497	40		6 238 8 239 4
	30	1599	398	2268	276	2177	717	.444 6323	1 497	30		7 278 6 279 3
	40	1998	399	1992	276	2894	717	.444 4826	1 497	20		8 318 4 319 2
	50	2397	398	1716	276	3611	717	.444 3330	1 496	10		9 358 2 359 1
									1 496			
42	0	0.569 2795		0.822 1440		0.692 4328		1.444 1834		0	18	Cosine
	10	3194	399	1164	276	5046	718	.444 0338	1 496	50		275 276 277
	20	3592	398	0888	276	5763	717	.443 8843	1 495	40		1 27 5 27 6 27 7
	30	3991	399	0612	276	6480	717	.443 7347	1 496	30		2 55 0 55 2 55 4
	40	4389	398	0336	276	7198	718	.443 5852	1 495	20		3 82 5 82 8 83 1
	50	4788	399	0060	276	7915	717	.443 4357	1 495	10		4 110 0 110 4 110 8
									1 495			5 137 5 138 0 138 5
43	0	0.569 5187		0.821 9784		0.692 8633		1.443 2862		0	17	6 165 0 165 6 166 2
	10	5585	398	9508	276	9350	717	.443 1367	1 495	50		7 192 5 193 2 193 9
	20	5983	399	9232	276	0 693 0068	718	.442 9873	1 494	40		8 220 0 220 8 221 6
	30	6382	399	8956	276	0786	718	.442 8379	1 494	30		9 247 5 248 4 249 3
	40	6780	398	8679	277	1503	717	.442 6885	1 494	20		
	50	7179	399	8403	276	2221	718	.442 5391	1 494	10		
									1 494			
44	0	0.569 7577		0.821 8127		0.693 2939		1.442 3897		0	16	Tangent
	10	7976	399	7851	276	3657	718	.442 2404	1 493	50		716 717
	20	8374	398	7575	276	4375	718	.442 0911	1 493	40		1 71 6 71 7
	30	8773	399	7298	277	5093	718	.441 9418	1 493	30		2 143 2 143 4
	40	9171	398	7022	276	5811	718	.441 7925	1 493	20		3 214 8 215 1
	50	9569	399	6746	276	6529	718	.441 6433	1 492	10		4 286 1 286 8
									1 492			5 358 0 358 5
45	0	0.569 9968		0.821 6469		0.693 7247		1.441 4940		0	15	6 429 6 430 2
	10	0 570 0366	398	6193	276	7965	718	.441 3448	1 492	50		7 501 2 501 9
	20	0764	398	5917	276	8683	718	.441 1956	1 492	40		8 572 8 573 6
	30	1163	399	5640	276	9401	718	.441 0465	1 491	30		9 644 4 645 3
	40	1561	398	5364	277	0 694 0120	719	.440 8973	1 492	20		
	50	1959	399	5087	276	0838	718	.440 7482	1 491	10		
									1 491			
46	0	0.570 2357		0.821 4811		0.694 1557		1.440 5991		0	14	718 719 720
	10	2756	399	4535	276	2275	718	.440 4500	1 491	50		1 71 8 71 9 72 0
	20	3154	398	4258	276	2993	718	.440 3009	1 491	40		2 143 6 143 8 144 0
	30	3552	398	3982	277	3712	719	.440 1519	1 490	30		3 215 4 215 7 216 0
	40	3950	399	3705	277	4431	719	.440 0029	1 490	20		4 287 2 287 6 288 0
	50	4349	398	3428	276	5149	718	.439 8539	1 490	10		5 359 0 359 5 360 0
									1 490			6 430 8 431 4 432 0
47	0	0.570 4747		0.821 3162		0.694 5868		1.439 7049		0	13	7 502 6 503 3 504 0
	10	5145	398	2875	277	6587	719	.439 5559	1 490	50		8 574 1 575 2 576 0
	20	5543	398	2599	277	7305	718	.439 4070	1 489	40		9 646 2 647 1 648 0
	30	5941	399	2322	277	8024	719	.439 2581	1 489	30		
	40	6339	399	2045	277	8743	719	.439 1092	1 489	20		
	50	6738	398	1769	276	9462	719	.438 9603	1 489	10		
									1 489			
48	0	0.570 7136		0 821 1492		0.695 0181		1.438 8114		0	12	Cotangent
	10	7534	398	1215	277	0900	719	.438 6626	1 488	50		1500 1490
	20	7932	399	0939	276	1619	719	.438 5138	1 488	40		1 150 0 149 0
	30	8330	398	0662	277	2338	719	.438 3650	1 488	30		2 300 0 298 0
	40	8728	398	0385	277	3057	719	.438 2162	1 488	20		3 450 0 447 0
	50	9126	398	0108	276	3777	720	.438 0675	1 487	10		4 600 0 596 0
									1 487			5 750 0 745 0
49	0	0.570 9524		0.820 9832		0.695 4496		1.437 9187		0	11	6 900 0 894 0
	10	9922	398	9555	277	5215	719	.437 7700	1 487	50		7 1050 0 1043 0
	20	0.571 0320	398	9278	277	5935	720	.437 6213	1 487	40		8 1200 0 1192 0
	30	0718	398	9001	277	6654	719	.437 4727	1 486	30		9 1350 0 1341 0
	40	1116	398	8724	277	7374	720	.437 3240	1 487	20		
	50	1514	398	8447	277	8093	719	.437 1754	1 486	10		
									1 486			
50	0	0.571 1912		0.820 8170		0.695 8813		1.437 0268		0	10	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

55° 10'

34° 50'

	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
50	0	0.571 1912		0.820 8170		0.695 8813		1.437 0268		0	10	Sine
	10	2310	398	7893	277	9532	719	436 8782	1 486	50		397 398
	20	2708	398	7617	276	0.696 0252	720	436 7296	1 486	40		1 39 7 39 8
	30	3106	398	7340	277	0972	720	436 5811	1 485	30		2 79 4 79 6
	40	3504	398	7063	277	1691	719	436 4325	1 486	20		3 119 1 119 4
	50	3902	398	6786	277	2411	720	436 2840	1 485	10		4 158 8 159 2
			397		277		720		1 484			5 198 5 199 0
51	0	0.571 4299		0.820 6509		0.696 3131		1 436 1356		0	9	6 238 2 238 8
	10	4697	398	6232	277	3851	720	435 9871	1 485	50		7 277 9 278 6
	20	5095	398	5954	278	4571	720	435 8387	1 484	40		8 317 6 318 4
	30	5493	398	5677	277	5291	720	435 6902	1 485	30		9 357 3 358 2
	40	5891	398	5400	277	6011	720	435 5418	1 484	20		Cosine
	50	6289	398	5123	277	6731	720	435 3935	1 483	10		276 277
			397		277		720		1 484			1 27 6 27 7
52	0	0.571 6686		0.820 4846		0.696 7451		1 435 2451		0	8	2 55 2 55 4
	10	7084	398	4569	277	8171	720	435 0968	1 483	50		3 82 8 83 1
	20	7482	398	4292	278	8892	721	434 9484	1 484	40		4 110 4 110 8
	30	7880	398	4014	277	9612	720	434 8001	1 483	30		5 138 0 138 5
	40	8277	397	3737	277	0.697 0332	720	434 6519	1 482	20		6 165 6 166 2
	50	8675	398	3460	277	1053	721	434 5036	1 483	10		7 193 2 193 9
			398		277		720		1 482			8 220 8 221 6
53	0	0.571 9073		0.820 3183		0.697 1773		1.434 3554		0	7	9 248 4 249 3
	10	9470	397	2905	278	2493	720	434 2072	1 482	50		Tangent
	20	9868	398	2628	277	3214	721	434 0590	1 482	40		278 279
	30	0.572 0266	397	2351	277	3935	721	433 9108	1 482	30		1 27 8 27 9
	40	0663	397	2073	278	4655	720	433 7626	1 482	20		2 55 6 55 8
	50	1061	398	1796	277	5376	721	433 6145	1 481	10		3 83 4 83 7
			398		277		721		1 481			4 111 2 111 6
54	0	0.572 1459		0.820 1519		0.697 6097		1.433 4664		0	6	5 139 0 139 5
	10	1856	397	1241	278	6817	720	433 3183	1 481	50		6 166 8 167 4
	20	2254	398	0964	277	7538	721	433 1702	1 481	40		7 194 6 195 3
	30	2652	398	0687	278	8259	721	433 0222	1 480	30		8 222 4 223 2
	40	3049	397	0409	277	8980	721	432 8741	1 481	20		9 250 2 251 1
	50	3447	398	0132	277	9701	721	432 7261	1 480	10		Tangent
			397		278		721		1 480			719 720
55	0	0.572 3844		0.819 9854		0.698 0422		1.432 5781		0	5	1 71 9 72 0
	10	4242	398	9577	277	1143	721	432 4302	1 479	50		2 143 8 144 0
	20	4639	397	9299	278	1864	721	432 2822	1 480	40		3 215 7 216 0
	30	5037	398	9022	277	2585	721	432 1343	1 479	30		4 287 6 288 0
	40	5434	397	8744	278	3307	722	432 9864	1 479	20		5 359 5 360 0
	50	5832	398	8466	278	4028	721	431 8385	1 479	10		6 431 4 432 0
			397		277		721		1 479			7 503 3 504 0
56	0	0.572 6229		0.819 8189		0.698 4749		1.431 6906		0	4	8 575 2 576 0
	10	6627	398	7911	278	5471	722	431 5428	1 478	50		9 647 1 648 0
	20	7024	397	7633	278	6192	721	431 3950	1 478	40		721 722 723
	30	7422	398	7356	277	6913	721	431 2472	1 478	30		1 72 1 72 2 72 3
	40	7819	397	7078	278	7635	722	431 0994	1 478	20		2 144 2 144 4 144 6
	50	8216	397	6800	278	8356	722	430 9516	1 478	10		3 216 3 216 6 216 9
			398		277		722		1 477			4 288 4 288 8 289 2
57	0	0 572 8614		0.819 6523		0.698 9078		1.430 8039		0	3	5 360 5 361 0 361 5
	10	9011	397	6245	278	9800	722	430 6562	1 477	50		6 432 6 433 2 433 8
	20	9408	398	5967	278	0.699 0521	722	430 5085	1 477	40		7 504 7 505 4 506 1
	30	9806	398	5689	278	1243	722	430 3608	1 477	30		8 576 8 577 6 578 4
	40	0 573 0203	397	5412	277	1965	722	430 2131	1 476	20		9 648 9 649 8 650 7
	50	0600	398	5134	278	2687	722	430 0655	1 477	10		Cotangent
												1490 1480
58	0	0.573 0998		0.819 4856		0.699 3409		1.429 9178		0	2	1 149 0 148 0
	10	1395	397	4578	278	4131	722	429 7702	1 476	50		2 298 0 296 0
	20	1792	398	4300	278	4853	722	429 6227	1 475	40		3 447 0 444 0
	30	2190	397	4022	278	5575	722	429 4751	1 476	30		4 596 0 592 0
	40	2587	397	3744	278	6297	722	429 3276	1 475	20		5 745 0 740 0
	50	2984	397	3467	277	7019	722	429 1801	1 475	10		6 894 0 888 0
												7 1045 0 1036 0
59	0	0.573 3381		0.819 3189		0 699 7741		1.429 0326		0	1	8 1192 0 1184 0
	10	3779	398	2911	278	8463	722	428 8851	1 475	50		9 1341 0 1332 0
	20	4176	397	2633	278	9186	723	428 7376	1 475	40		1470
	30	4573	397	2355	278	9908	722	428 5902	1 474	30		1 147 0
	40	4970	397	2077	278	0.700 0630	722	428 4428	1 474	20		2 294 0
	50	5367	397	1799	278	1353	723	428 2954	1 474	10		3 441 0
									1 474			4 588 0
60	0	0.573 5764		0.819 1520		0.700 2075		1.428 1480		0	0	5 735 0
												6 882 0
												7 1029 0
												8 1176 0
												9 1323 0
												Proportional Parts

55° 0'

[illegible]54° 50'

35° 10'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
10	0	0.575 9668		0.817 4801		0.704 5515		1.419 3427		0	50	
	10	9965	397	4522	279	6240	725	.419 1966	1.461	50		
	20	0.576 0361	396	4243	279	6966	726	.419 0504	1.462	40		
	30	0737	396	3963	280	7691	725	.418 9043	1.461	30		
	40	1153	396	3684	279	8417	726	.418 7583	1.460	20		
	50	1550	397	3405	279	9143	726	.418 6122	1.461	10		
			396		280		726		1.460			
11	0	0.576 1946		0.817 3125		0.704 9869		1.418 4662		0	49	Sine
	10	2342	396	2846	279	0.705 0594	725	.418 3202	1.460	50		395 396 397
	20	2738	396	2567	279	1320	726	.418 1742	1.460	40		1 39 5 39 6 39 7
	30	3135	397	2287	280	2046	726	.418 0282	1.460	30		2 79 0 79 2 79 4
	40	3531	396	2008	279	2772	726	.417 8822	1.460	20		3 118 5 118 8 119 1
	50	3927	396	1728	280	3498	726	.417 7363	1.459	10		4 158 0 158 4 158 8
			396		279		726		1.459			5 197 5 198 0 198 5
12	0	0.576 4323		0.817 1449		0.705 4224		1.417 5904		0	48	6 237 0 237 6 238 2
	10	4719	396	1170	279	4950	726	.417 4445	1.459	50		7 276 5 277 2 277 9
	20	5115	396	0890	280	5676	726	.417 2986	1.459	40		8 316 0 316 8 317 6
	30	5512	397	0611	279	6402	727	.417 1527	1.459	30		9 355 5 356 4 357 3
	40	5908	396	0331	280	7129	726	.417 0069	1.458	20		
	50	6304	396	0051	280	7855	726	.416 8611	1.458	10		
			396		279		726		1.458			Cosine
13	0	0.576 6700		0.816 9772		0.705 8581		1.416 7153		0	47	279 280 281
	10	7096	396	9492	280	9308	727	.416 5695	1.458	50		1 27 9 28 0 28 1
	20	7492	396	9213	279	0 706 0034	726	.416 4237	1.458	40		2 55 8 56 0 56 2
	30	7888	396	8933	280	0761	726	.416 2780	1.457	30		3 83 7 84 0 84 3
	40	8284	396	8653	280	1487	726	.416 1323	1.457	20		4 111 6 112 0 112 4
	50	8680	396	8374	279	2214	727	.415 9866	1.457	10		5 139 5 140 0 140 5
			396		280		726		1.457			6 167 4 168 0 168 6
14	0	0.576 9076		0.816 8094		0.706 2940		1.415 8409		0	46	7 195 3 196 0 196 7
	10	9472	396	7814	280	3667	727	.415 6953	1.456	50		8 223 2 224 0 224 8
	20	9868	396	7535	279	4394	727	.415 5496	1.456	40		9 251 1 252 0 252 9
	30	0.577 0264	396	7255	280	5121	727	.415 4040	1.456	30		
	40	0660	396	6975	280	5847	726	.415 2584	1.456	20		Tangent
	50	1056	396	6695	280	6574	727	.415 1128	1.456	10		725 726
			396		279		727		1.455			1 72 5 72 6
15	0	0.577 1452		0.816 6416		0.706 7301		1.414 9673		0	45	2 145 0 145 2
	10	1848	396	6136	280	8028	727	.414 8217	1.456	50		3 217 5 217 8
	20	2244	396	5856	280	8755	727	.414 6762	1.455	40		4 290 0 290 4
	30	2640	396	5576	280	9482	727	.414 5307	1.455	30		5 362 5 363 0
	40	3035	395	5296	280	0.707 0210	728	.414 3852	1.455	20		6 435 0 435 6
	50	3431	396	5016	280	0937	727	.414 2398	1.454	10		7 507 5 508 2
			396		280		727		1.454			8 580 0 580 8
16	0	0.577 3827		0.816 4736		0.707 1664		1.414 0943		0	44	9 652 5 653 4
	10	4223	396	4456	280	2391	727	.413 9489	1.454	50		727 728 729
	20	4619	396	4176	280	3119	728	.413 8035	1.454	40		1 72 7 72 8 72 9
	30	5015	396	3897	279	3846	727	.413 6582	1.453	30		2 145 4 145 6 145 8
	40	5410	395	3617	280	4573	727	.413 5128	1.454	20		3 218 1 218 4 218 7
	50	5806	396	3337	280	5301	728	.413 3675	1.453	10		4 290 8 291 2 291 6
			396		281		727		1.454			5 363 5 364 0 364 5
17	0	0.577 6202		0.816 3056		0.707 6028		1.413 2221		0	43	6 436 2 436 8 437 4
	10	6598	396	2776	280	6756	728	.413 0768	1.453	50		7 508 9 509 6 510 3
	20	6993	395	2496	280	7484	727	.412 9316	1.452	40		8 581 6 582 4 583 2
	30	7389	396	2216	280	8211	727	.412 7863	1.453	30		9 654 3 655 2 656 1
	40	7785	396	1936	280	8939	728	.412 6411	1.452	20		
	50	8181	395	1656	280	9667	728	.412 4958	1.452	10		Cotangent
			395		280		728					1460 1450
18	0	0.577 8576		0.816 1376		0.708 0395		1.412 3506		0	42	1 146 0 145 0
	10	8972	396	1096	280	1123	728	.412 2055	1.451	50		2 292 0 290 0
	20	9368	396	0816	281	1850	727	.412 0603	1.452	40		3 438 0 435 0
	30	9763	395	0535	281	2578	728	.411 9152	1.451	30		4 584 0 580 0
	40	0.578 0159	396	0255	280	3307	729	.411 7701	1.451	20		5 730 0 725 0
	50	0554	395	0.815 9975	280	4035	728	.411 6250	1.451	10		6 876 0 870 0
			396		280		728		1.451			7 1022 0 1015 0
19	0	0.578 0950		0.815 9695		0.708 4763		1.411 4799		0	41	8 1168 0 1160 0
	10	1346	396	9414	281	5491	728	.411 3348	1.451	50		9 1314 0 1305 0
	20	1741	395	9134	280	6219	728	.411 1898	1.450	40		
	30	2137	396	8854	281	6947	728	.411 0448	1.450	30		
	40	2532	395	8573	281	7676	729	.410 8998	1.450	20		
	50	2928	396	8293	280	8404	728	.410 7548	1.450	10		
			395		280		729		1.450			
20	0	0.578 3323		0.815 8013		0.708 9133		1.410 6098		0	40	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

54° 40'

35° 20'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
20	0	0.578 3323		0.815 8013		0.708 9133		1.410 6098		0	40	
	10	3719	396	7732	281	9861	728	.410 4649	1 449	50		Sine
	20	4114	395	7452	280	0.709 0590	728	.410 3200	1 449	40		394 395 396
	30	4510	396	7171	281	1318	728	.410 1750	1 450	30		1 39 4 39 5 .39 6
	40	4905	395	6891	280	2047	729	.410 0302	1 448	20		2 78 8 79 0 79 2
	50	5301	396	6611	280	2776	729	.409 8853	1 449	10		3 118 2 118 5 118 8
			395		281		728		1 448			4 157 6 158 0 158 4
21	0	0.578 5696		0.815 6330		0.709 3504		1 409 7405		0	39	
	10	6092	396	6050	280	4233	729	.409 5956	1 449	50		5 197 0 197 5 198 0
	20	6487	395	5769	281	4962	729	.409 4508	1 448	40		6 236 4 237 0 237 6
	30	6882	395	5488	281	5691	729	.409 3061	1 447	30		7 275 8 276 5 277 2
	40	7278	396	5208	280	6420	729	.409 1613	1 448	20		8 315 2 316 0 316 8
	50	7673	395	4927	281	7149	729	.409 0166	1 447	10		9 354 6 355 5 356 4
			396		280		729		1 448			
22	0	0.578 8069		0.815 4647		0.709 7878		1.408 8718		0	38	
	10	8464	395	4366	281	8607	729	.408 7271	1 447	50		Cosine
	20	8859	395	4085	281	9336	729	.408 5824	1 447	40		280 281 282
	30	9255	396	3805	280	0.710 0065	729	.408 4378	1 446	30		1 28 0 28 1 28 2
	40	9650	395	3524	281	0794	729	.408 2931	1 447	20		2 56 0 56 2 56 4
	50	0 579 0045	395	3243	281	1524	730	.408 1485	1 446	10		3 84 0 84 3 84 6
			395		280		729		1 446			4 112 0 112 4 112 8
23	0	0 579 0440		0.815 2963		0.710 2253		1.408 0039		0	37	
	10	0836	396	2682	281	2982	729	.407 8593	1 446	50		5 140 0 140 5 141 0
	20	1231	395	2401	281	3712	730	.407 7148	1 445	40		6 168 0 168 6 169 2
	30	1626	395	2120	281	4441	729	.407 5702	1 446	30		7 196 0 196 7 197 1
	40	2021	395	1840	280	5171	730	.407 4257	1 445	20		8 224 0 224 8 225 6
	50	2417	396	1559	281	5900	729	.407 2812	1 445	10		9 252 0 252 9 253 8
			395		281		730		1 445			
24	0	0.579 2812		0.815 1278		0.710 6630		1 407 1367		0	36	
	10	3207	395	0997	281	7360	730	.406 9922	1 445	50		Tangent
	20	3602	395	0716	281	8090	730	.406 8478	1 444	40		728 729
	30	3997	395	0435	281	8819	729	.406 7034	1 444	30		1 72 8 72 9
	40	4392	395	0154	281	9549	730	.406 5590	1 444	20		2 145 6 145 8
	50	4787	396	0 814 9874	280	0.711 0279	730	.406 4146	1 444	10		3 218 4 218 7
			396		281		730		1 444			4 291 2 291 6
25	0	0 579 5183		0.814 9593		0.711 1009		1.406 2702		0	35	
	10	5578	395	9312	281	1739	730	.406 1258	1 444	50		5 364 0 364 5
	20	5973	395	9031	281	2469	730	.405 9815	1 443	40		6 436 8 437 4
	30	6368	395	8750	281	3199	730	.405 8372	1 443	30		7 509 6 510 3
	40	6763	395	8469	281	3929	730	.405 6929	1 442	20		8 582 4 583 2
	50	7158	395	8188	281	4659	731	.405 5487	1 443	10		9 655 2 656 1
			395		282		731		1 443			
26	0	0 579 7553		0.814 7906		0.711 5390		1.405 4044		0	34	
	10	7948	395	7625	281	6120	730	.405 2602	1 442	50		730 731 732
	20	8343	395	7344	281	6850	730	.405 1160	1 442	40		1 73 0 73 1 73 2
	30	8738	395	7063	281	7581	731	.404 9718	1 442	30		2 146 0 146 2 146 4
	40	9133	395	6782	281	8311	730	.404 8276	1 442	20		3 219 0 219 3 219 6
	50	9528	395	6501	281	9042	731	.404 6834	1 441	10		4 292 0 292 4 292 8
			395		281		730		1 441			5 365 0 365 5 366 0
27	0	0 579 9923		0.814 6220		0 711 9772		1.404 5393		0	33	
	10	0 580 0318	395	5938	282	0.712 0503	731	.404 3952	1 441	50		6 438 0 438 6 439 2
	20	0713	395	5657	281	1233	731	.404 2511	1 441	40		7 511 0 511 7 512 4
	30	1108	395	5376	281	1964	731	.404 1070	1 440	30		8 584 0 584 8 585 6
	40	1502	394	5095	282	2695	731	.403 9630	1 440	20		9 657 0 657 9 658 8
	50	1897	395	4813	281	3426	731	.403 8190	1 441	10		
			395		281		731		1 441			
28	0	0.580 2292		0.814 4532		0.712 4157		1.403 6749		0	32	
	10	2687	395	4251	281	4887	730	.403 5309	1 440	50		Cotangent
	20	3082	395	3970	281	5618	731	.403 3870	1 439	40		1450 1440
	30	3477	395	3688	282	6349	731	.403 2430	1 440	30		1 145 0 144 0
	40	3872	394	3407	282	7080	732	.403 0991	1 439	20		2 290 0 288 0
	50	4266	395	3125	281	7812	731	.402 9552	1 439	10		3 435 0 432 0
			395		281		731		1 439			4 580 0 576 0
29	0	0.580 4661		0.814 2844		0.712 8543		1.402 8113		0	31	
	10	5056	395	2563	281	9274	731	.402 6674	1 439	50		5 725 0 720 0
	20	5451	395	2281	282	0.713 0005	731	.402 5235	1 438	40		6 870 0 864 0
	30	5845	394	2000	281	0736	732	.402 3797	1 438	30		7 1015 0 1008 0
	40	6240	395	1718	282	1468	732	.402 2359	1 438	20		8 1160 0 1152 0
	50	6635	395	1437	282	2199	732	.402 0921	1 438	10		9 1305 0 1296 0
			395		282		732		1 438			
30	0	0.580 7030		0.814 1155		0.713 2931		1.401 9483		0	30	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

54° 30'

35° 30'

	'	"	Sine	Diff	Cosine	Diff.	Tangent	Diff.	Cotangent	Diff			Proportional Parts
30	0	0.580 7030			0.814 1155		0.713 2931		1.401 9483		0	30	
	10	7424	394		0874	281	3662	731	.401 8045	1 438	50		Sine
	20	7819	395		0592	282	4394	732	.401 6608	1 437	40		394 395
	30	8214	395		0310	282	5125	731	.401 5171	1 437	30		1 39 4 39 5
	40	8608	395		0029	281	5857	732	.401 3734	1 437	20		2 78 8 79 0
	50	9003	395		0.813 9747	282	6589	732	.401 2297	1 437	10		3 118 2 118 5
			394			281		731		1 437			4 157 6 158 0
31	0	0.580 9397			0.813 9466		0.713 7320		1.401 0860		0	29	
	10	9792	395		9184	282	8052	732	.400 9424	1 436	50		5 197 0 197 5
	20	0.581 0187	395		8902	282	8784	732	.400 7988	1 436	40		6 236 4 237 0
	30	0581	394		8621	281	9516	732	.400 6552	1 436	30		7 275 8 276 5
	40	0976	395		8339	282	0.714 0248	732	.400 5116	1 436	20		8 315 2 316 0
	50	1370	395		8057	282	0980	732	.400 3680	1 435	10		9 354 6 355 5
32	0	0.581 1765			0.813 7775		0.714 1712		1.400 2245		0	28	
	10	2159	394		7494	281	2444	732	.400 0809	1 436	50		Cosine
	20	2554	395		7212	282	3176	732	.399 9374	1 435	40		281 282 283
	30	2948	394		6930	282	3908	733	.399 7939	1 435	30		1 28 1 28 2 28 3
	40	3343	395		6648	282	4641	733	.399 6505	1 434	20		2 56 2 56 4 56 6
	50	3737	394		6366	282	5373	732	.399 5070	1 435	10		3 84 3 84 6 84 9
			395			282		733		1 434			4 112 4 112 8 113 2
33	0	0.581 4132			0.813 6084		0.714 6106		1.399 3636		0	27	
	10	4526	394		5803	281	6838	732	.399 2202	1 434	50		5 140 5 141 0 141 5
	20	4921	395		5521	282	7570	732	.399 0768	1 434	40		6 168 6 169 2 169 8
	30	5315	394		5239	282	8303	733	.398 9334	1 434	30		7 196 7 197 4 198 1
	40	5710	395		4957	282	9036	733	.398 7901	1 433	20		8 224 8 225 6 226 4
	50	6104	394		4675	282	9768	732	.398 6468	1 433	10		9 252 9 253 8 254 7
			395			282		733		1 434			
34	0	0.581 6498			0.813 4393		0.715 0501		1.398 5034		0	26	
	10	6893	395		4111	282	1234	733	.398 3602	1 432	50		Tangent
	20	7287	394		3829	282	1966	732	.398 2169	1 433	40		731 732
	30	7681	395		3547	282	2699	733	.398 0736	1 433	30		1 73 1 73 2
	40	8076	394		3265	282	3432	733	.397 9304	1 432	20		2 146 2 146 4
	50	8470	394		2983	282	4165	733	.397 7872	1 432	10		3 219 3 219 6
			395			282		733		1 432			4 292 4 292 8
35	0	0.581 8864			0.813 2701		0.715 4898		1.397 6440		0	25	
	10	9259	395		2418	283	5631	733	.397 5008	1 432	50		5 365 5 366 0
	20	9653	394		2136	282	6364	733	.397 3577	1 431	40		6 438 6 439 2
	30	0.582 0047	394		1854	282	7097	733	.397 2145	1 432	30		7 511 7 512 4
	40	0441	394		1572	282	7830	734	.397 0714	1 431	20		8 584 8 585 6
	50	0835	394		1290	282	8564	733	.396 9283	1 431	10		9 657 9 658 8
			395			282		733		1 431			
36	0	0.582 1230			0.813 1008		0.715 9297		1.396 7852		0	24	
	10	1624	394		0725	283	0.716 0030	733	.396 6422	1 430	50		733 734 735
	20	2018	394		0443	282	0764	734	.396 4991	1 431	40		1 73 3 73 4 73 5
	30	2412	394		0161	282	1497	733	.396 3561	1 430	30		2 146 6 146 8 147 0
	40	2806	395		0.812 9879	283	2230	734	.396 2131	1 430	20		3 219 9 220 2 220 5
	50	3201	394		9596	282	2964	734	.396 0701	1 430	10		4 293 2 293 6 294 0
			395			282		734		1 429			5 366 5 367 0 367 5
37	0	0.582 3696			0.812 9314		0.716 3698		1.395 9272		0	23	
	10	3989	394		9032	283	4431	733	.395 7842	1 430	50		6 439 8 440 4 441 0
	20	4383	394		8749	282	5165	734	.395 6413	1 429	40		7 513 1 513 8 514 5
	30	4777	394		8467	282	5899	733	.395 4984	1 429	30		8 586 4 587 2 588 0
	40	5171	394		8184	282	6632	734	.395 3555	1 429	20		9 659 7 660 6 661 5
	50	5565	394		7902	282	7366	734	.395 2126	1 428	10		
			395			282							Cotangent
38	0	0.582 5969			0.812 7620		0.716 8100		1.395 0698		0	22	
	10	6353	394		7337	283	8834	734	.394 9270	1 428	50		1440 1430
	20	6747	394		7055	283	9568	734	.394 7842	1 428	40		1 144 0 143 0
	30	7141	394		6772	283	0.717 0302	734	.394 6414	1 428	30		2 288 0 286 0
	40	7535	394		6490	282	1036	734	.394 4986	1 428	20		3 432 0 429 0
	50	7929	394		6207	282	1770	735	.394 3558	1 427	10		4 576 0 572 0
			395			282							5 720 0 715 0
39	0	0.582 8323			0.812 5926		0.717 2605		1.394 2131		0	21	
	10	8717	394		5642	283	3239	734	.394 0704	1 427	50		6 864 0 858 0
	20	9111	394		5359	283	3973	735	.393 9277	1 427	40		7 1008 0 1001 0
	30	9505	394		5077	283	4708	734	.393 7850	1 426	30		8 1152 0 1144 0
	40	9899	394		4794	283	5442	734	.393 6424	1 426	20		9 1296 0 1287 0
	50	0.583 0293	394		4511	282	6176	735	.393 4998	1 427	10		1420
			395										1 142 0
40	0	0.583 0687			0.812 4229		0.717 6911		1.393 3671		0	20	
													2 284 0
													3 426 0
													4 568 0
													5 710 0
													6 852 0
													7 994 0
													8 1136 0
													9 1278 0
			Cosine	Diff	Sine	Diff.	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

54° 20'

35° 40'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
40	0	0.583 0687		0.812 4229		0.717 6911		1.393 3571		0	20	
	10	1080	393	3946	283	7645	734	.393 2145	1 426	50		Sine
	20	1474	394	3663	282	8380	735	.393 0720	1 425	40		393 394
	30	1868	394	3381	283	9115	734	.392 9294	1 426	30		1 39 3 39 4
	40	2262	394	3098	283	9849	735	.392 7869	1 425	20		2 78 6 78 8
	50	2656	394	2815	283	0.718 0584	735	.392 6443	1 426	10		3 117 9 118 2
									1 424			4 157 2 157 6
41	0	0.583 3060		0.812 2532		0.718 1319		1.392 5019		0	19	
	10	3443	393	2250	282	2054	735	.392 3594	1 425	50		5 196 5 197 0
	20	3837	394	1967	283	2789	735	.392 2169	1 425	40		6 235 8 236 4
	30	4231	394	1684	283	3524	735	.392 0745	1 424	30		7 275 1 275 8
	40	4625	394	1401	283	4259	735	.391 9320	1 424	20		8 314 4 315 2
	50	5018	393	1118	283	4994	735	.391 7896	1 425	10		9 353 7 354 6
									1 423			
42	0	0.583 5412		0.812 0835		0.718 5729		1.391 6473		0	18	
	10	5806	394	0552	283	0464	735	.391 5049	1 424	50		Cosine
	20	6200	393	0269	283	7199	736	.391 3625	1 423	40		282 283 284
	30	6593	394	0.811 9986	283	7935	735	.391 2202	1 423	30		1 28 2 28 3 28 4
	40	6987	393	9703	283	8670	735	.391 0779	1 423	20		2 56 4 56 6 56 8
	50	7380	394	9420	283	9405	736	.390 9356	1 422	10		3 84 6 84 9 85 2
												4 112 8 113 2 113 6
43	0	0.583 7774		0.811 9137		0.719 0141		1.390 7934		0	17	
	10	8168	394	8854	283	0876	735	.390 6511	1 423	50		5 141 0 141 5 142 0
	20	8561	393	8571	283	1612	736	.390 5089	1 422	40		6 169 2 169 8 170 4
	30	8955	394	8288	283	2347	735	.390 3667	1 422	30		7 197 4 198 1 198 8
	40	9349	393	8005	283	3083	736	.390 2245	1 422	20		8 225 6 226 4 227 2
	50	9742	394	7722	283	3819	735	.390 0823	1 422	10		9 253 8 254 7 255 6
44	0	0.584 0136		0.811 7439		0.719 4554		1.389 9401		0	16	
	10	0529	393	7156	283	5290	736	.389 7980	1 421	50		Tangent
	20	0923	394	6873	284	6026	736	.389 6559	1 421	40		734 735
	30	1316	394	6589	283	6762	735	.389 5138	1 421	30		1 73 4 73 5
	40	1710	393	6306	283	7498	736	.389 3717	1 421	20		2 148 8 147 0
	50	2103	394	6023	283	8234	736	.389 2297	1 420	10		3 220 2 220 5
												4 293 6 294 0
45	0	0.584 2497		0.811 5740		0.719 8970		1.389 0876		0	15	
	10	2890	393	5457	283	9706	736	.388 9456	1 420	50		5 367 0 367 5
	20	3284	394	5173	284	0.720 0442	736	.388 8036	1 420	40		6 440 4 441 0
	30	3677	393	4890	283	1178	737	.388 6616	1 420	30		7 513 8 514 5
	40	4070	394	4607	284	1915	736	.388 5197	1 419	20		8 587 2 588 0
	50	4464	393	4323	283	2651	736	.388 3777	1 419	10		9 660 6 661 5
46	0	0.584 4857		0.811 4040		0.720 3387		1.388 2358		0	14	
	10	5251	394	3757	283	4124	737	.388 0939	1 419	50		736 737 738
	20	5644	393	3473	284	4860	736	.387 9520	1 419	40		1 73 6 73 7 73 8
	30	6037	393	3190	284	5597	737	.387 8101	1 419	30		2 147 2 147 4 147 6
	40	6431	394	2906	283	6333	736	.387 6683	1 418	20		3 220 8 221 1 221 4
	50	6824	393	2623	284	7070	737	.387 5265	1 418	10		4 294 4 294 8 295 2
												5 368 0 368 5 369 0
47	0	0.584 7217		0.811 2339		0.720 7806		1.387 3847		0	13	
	10	7611	394	2056	283	8543	737	.387 2429	1 418	50		6 441 6 442 2 442 8
	20	8004	393	1772	284	9280	737	.387 1011	1 418	40		7 515 2 515 9 516 6
	30	8397	393	1489	284	0.721 0017	737	.386 9593	1 417	30		8 588 8 589 6 590 4
	40	8790	394	1205	283	0754	736	.386 8176	1 417	20		9 662 4 663 3 664 2
	50	9184	393	0922	284	1490	737	.386 6759	1 417	10		
												Cotangent
48	0	0.584 9577		0.811 0638		0.721 2227		1.386 5342		0	12	
	10	9970	393	0355	283	2964	737	.386 3925	1 417	50		1430 1420
	20	0.585 0363	393	0071	284	3702	738	.386 2509	1 416	40		1 143 0 142 0
	30	0756	393	0.810 9787	283	4439	737	.386 1092	1 417	30		2 286 0 284 0
	40	1149	394	9504	284	5176	737	.385 9676	1 416	20		3 429 0 426 0
	50	1543	393	9220	284	5913	737	.385 8260	1 416	10		4 572 0 568 0
												5 715 0 710 0
49	0	0.585 1936		0.810 8936		0.721 6650		1.385 6844		0	11	
	10	2329	393	8653	283	7388	738	.385 5429	1 415	50		6 858 0 852 0
	20	2722	393	8369	284	8125	737	.385 4013	1 415	40		7 1001 0 994 0
	30	3115	393	8085	284	8863	738	.385 2598	1 415	30		8 1114 0 1136 0
	40	3508	393	7801	284	9600	737	.385 1183	1 415	20		9 1287 0 1278 0
	50	3901	393	7517	283	0.722 0338	737	.384 9768	1 415	10		
												1410
50	0	0.585 4294		0.810 7234		0.722 1075		1.384 8353		0	10	
												1 141 0
												2 282 0
												3 423 0
												4 564 0
												5 705 0
												6 846 0
												7 987 0
												8 1128 0
												9 1269 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

54° 10'

35° 50'

	'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
50	0	0.585 4294			0.810 7234		0.722 1075		1.384 8353		0	10	
	10	4687	393		6950	284	1813	738	384 6939	1 414	50		Sine
	20	5080	393		6666	284	2550	737	.384 5525	1 414	40		392 393
	30	5473	393		6382	284	3288	738	.384 4111	1 414	30		1 39 2 39 3
	40	5866	393		6098	284	4026	738	.384 2697	1 414	20		2 78 4 78 6
	50	6259	393		5814	284	4764	738	.384 1283	1 414	10		3 117 6 117 9
51	0	0.585 6652			0.810 5530		0.722 5502		1.383 9869		0	9	
	10	7045	393		5246	284	6240	738	.383 8456	1 413	50		4 156 8 157 2
	20	7438	393		4962	284	6978	738	.383 7043	1 413	40		5 196 0 196 5
	30	7831	393		4678	284	7716	738	.383 5630	1 413	30		6 235 2 235 8
	40	8224	393		4394	284	8454	738	.383 4217	1 413	20		7 274 4 275 1
	50	8617	393		4110	284	9192	738	.383 2805	1 412	10		8 313 6 314 4
52	0	0.585 9010			0.810 3826		0.722 9930		1.383 1392		0	8	
	10	9403	393		3542	284	0668	738	.382 9980	1 412	50		Cosine
	20	9796	393		3258	284	1407	739	.382 8568	1 412	40		284 285
	30	0.586 0189	392		2974	284	2145	739	.382 7156	1 412	30		1 28 4 28 5
	40	0581	393		2690	284	2884	738	.382 5744	1 411	20		2 56 8 57 0
	50	0974	393		2406	284	3622	739	.382 4333	1 411	10		3 85 2 85 5
53	0	0.586 1367			0.810 2122		0.723 4361		1.382 2922		0	7	
	10	1760	393		1838	284	5099	738	.382 1511	1 411	50		4 113 6 114 0
	20	2153	393		1553	285	5838	739	.382 0100	1 411	40		5 142 0 142 5
	30	2545	392		1269	284	6576	738	.381 8689	1 411	30		6 170 4 171 0
	40	2938	393		0985	284	7315	739	.381 7279	1 410	20		7 198 8 199 5
	50	3331	393		0701	285	8054	739	.381 5868	1 411	10		8 227 2 228 0
54	0	0.586 3724			0.810 0416		0.723 8793		1.381 4458		0	6	
	10	4116	392		0132	284	9532	739	.381 3048	1 410	50		Tangent
	20	4509	393		0 809 9848	284	0271	739	.381 1639	1 409	40		737 738
	30	4902	392		9563	285	1010	739	.381 0229	1 410	30		1 73 7 73 8
	40	5294	393		9279	284	1749	739	.380 8820	1 409	20		2 147 4 147 6
	50	5687	393		8995	285	2488	739	.380 7410	1 410	10		3 221 1 221 4
55	0	0.586 6080			0 809 8710		0.724 3227		1 380 6001		0	5	
	10	6472	392		8426	284	3966	739	.380 4593	1 408	50		4 294 8 295 2
	20	6865	392		8142	284	4705	739	.380 3184	1 409	40		5 368 5 369 0
	30	7257	393		7857	285	5445	740	.380 1776	1 408	30		6 442 2 442 8
	40	7650	393		7573	284	6184	739	.380 0367	1 409	20		7 515 9 516 6
	50	8043	392		7288	285	6923	739	.379 8959	1 408	10		8 580 6 580 4
56	0	0.586 8435			0.809 7004		0.724 7663		1 379 7551		0	4	
	10	8828	393		6719	285	8402	739	.379 6144	1 407	50		9 663 3 664 2
	20	9220	392		6435	284	9142	740	.379 4736	1 408	40		739 740 741
	30	9613	393		6150	285	9881	739	.379 3329	1 409	30		1 73 9 74 0 74 1
	40	0.587 0005	392		5865	284	0621	740	.379 1922	1 407	20		2 147 4 148 0
	50	0398	393		5581	285	1361	740	.379 0515	1 407	10		3 221 7 222 0
57	0	0.587 0790			0.809 5296		0.725 2101		1.378 9108		0	3	
	10	1183	392		5012	284	2840	739	.378 7702	1 406	50		4 295 6 296 0
	20	1575	393		4727	285	3580	740	.378 6295	1 407	40		5 369 5 370 0
	30	1968	393		4442	284	4320	740	.378 4889	1 408	30		6 443 4 444 0
	40	2360	392		4158	285	5060	740	.378 3483	1 406	20		7 517 3 518 0
	50	2752	393		3873	285	5800	740	.378 2077	1 405	10		8 591 2 592 0
58	0	0.587 3145			0.809 3588		0.725 6540		1.378 0672		0	2	
	10	3537	392		3303	285	7280	740	.377 9266	1 406	50		9 665 1 666 0
	20	3930	393		3019	284	8021	741	.377 7861	1 405	40		Cotangent
	30	4322	392		2734	285	8761	740	.377 6456	1 405	30		1420 1410
	40	4714	393		2449	285	9501	740	.377 5051	1 405	20		1 142 0 141 0
	50	5107	392		2164	285	0241	741	.377 3647	1 405	10		2 284 0 282 0
59	0	0.587 5499			0.809 1879		0.726 0982		1.377 2242		0	1	
	10	5891	392		1595	284	1722	740	.377 0838	1 404	50		3 426 0 423 0
	20	6284	393		1310	285	2463	741	.376 9434	1 404	40		4 568 0 564 0
	30	6676	392		1025	285	3203	741	.376 8030	1 404	30		5 710 0 705 0
	40	7068	393		0740	285	3944	741	.376 6626	1 404	20		6 852 0 846 0
	50	7460	393		0455	285	4685	740	.376 5223	1 403	10		7 994 0 987 0
60	0	0.587 7853			0.809 0170		0.726 5425		1.376 3819		0	0	
													8 1136 0 1128 0
													9 1278 0 1269 0
													1400
													1 140 0
													2 280 0
													3 420 0
													4 560 0
													5 700 0
													6 840 0
													7 980 0
													8 1120 0
													9 1260 0
			Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

54° 0'

36° 0'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
0	0	0.587 7853		0.809 0170		0.726 5425		1.376 3819		0	60	
	10	8245	392	0.808 9885	285	6166	741	.376 2416	1 403	50		Sine
	20	8637	392	9600	285	6907	741	.376 1013	1 403	40		391 392 393
	30	9029	392	9315	285	7648	741	.375 9610	1 403	30		1 39 1 39 2 39 3
	40	9421	392	9030	285	8389	741	.375 8208	1 402	20		2 78 2 78 4 78 6
	50	9813	393	8745	285	9130	741	.375 6805	1 402	10		3 117 3 117 6 117 9
1	0	0.588 0206		0.808 8460		0.726 9871		1.375 5403		0	59	4 156 4 156 8 157 2
	10	0598	392	8175	285	0.727 0612	741	.375 4001	1 402	50		5 195 5 196 0 196 5
	20	0990	392	7890	285	1353	741	.375 2599	1 402	40		6 231 6 235 2 235 8
	30	1382	392	7604	286	2094	741	.375 1197	1 402	30		7 273 7 274 1 275 1
	40	1774	392	7319	285	2835	741	.374 9796	1 401	20		8 312 8 313 6 314 4
	50	2166	392	7034	285	3576	742	.374 8395	1 401	10		9 351 9 352 8 353 7
2	0	0.588 2558		0.808 6749		0.727 4318		1.374 6994		0	58	Cosine
	10	2950	392	6464	285	5059	741	.374 5593	1 401	50		285 286
	20	3342	392	6179	285	5801	742	.374 4192	1 401	40		1 28 5 28 6
	30	3734	392	5893	286	6542	742	.374 2791	1 401	30		2 57 0 57 2
	40	4126	392	5608	285	7284	742	.374 1391	1 400	20		3 85 5 85 8
	50	4518	392	5323	286	8025	742	.373 9991	1 400	10		4 114 0 114 4
3	0	0.588 4910		0.808 5037		0.727 8767		1.373 8591		0	57	5 142 5 143 0
	10	5302	392	4752	285	9509	742	.373 7191	1 400	50		6 171 0 171 6
	20	5694	392	4467	285	0.728 0250	741	.373 5791	1 400	40		7 199 5 200 2
	30	6086	392	4181	286	0992	742	.373 4392	1 399	30		8 228 0 228 8
	40	6478	392	3896	285	1734	742	.373 2993	1 399	20		9 256 5 257 4
	50	6870	392	3611	286	2476	742	.373 1594	1 399	10		
4	0	0.588 7262		0.808 3325		0.728 3218		1.373 0195		0	56	Tangent
	10	7654	392	3040	285	3960	742	.372 8796	1 399	50		741 742
	20	8046	392	2754	286	4702	742	.372 7398	1 398	40		1 74 1 74 2
	30	8437	391	2469	285	5444	742	.372 5999	1 398	30		2 148 2 148 4
	40	8829	392	2183	286	6186	742	.372 4601	1 398	20		3 222 3 222 6
	50	9221	392	1898	285	6928	743	.372 3203	1 398	10		4 296 4 296 8
5	0	0.588 9613		0.808 1612		0.728 7671		1.372 1806		0	55	5 370 5 371 0
	10	0 589 0005	392	1327	285	8413	742	.372 0408	1 398	50		6 444 6 445 2
	20	0397	392	1041	286	9155	742	.371 9011	1 397	40		7 518 7 519 4
	30	0788	391	0756	285	9898	743	.371 7613	1 398	30		8 592 8 593 6
	40	1180	392	0470	286	0.729 0640	742	.371 6216	1 396	20		9 666 9 667 8
	50	1572	392	0184	285	1383	742	.371 4820	1 397	10		
6	0	0.589 1964		0.807 9899		0 729 2125		1.371 3423		0	54	743 744
	10	2355	391	9613	286	2868	743	.371 2026	1 397	50		1 74 3 74 4
	20	2747	392	9328	285	3611	743	.371 0630	1 396	40		2 118 6 118 8
	30	3139	391	9042	286	4354	743	.370 9234	1 396	30		3 222 9 223 2
	40	3530	392	8756	286	5096	742	.370 7838	1 396	20		4 297 2 297 6
	50	3922	392	8470	285	5839	743	.370 6443	1 395	10		5 371 5 372 0
7	0	0.589 4314		0.807 8185		0.729 6582		1.370 5047		0	53	6 445 8 446 4
	10	4705	391	7899	286	7325	743	.370 3652	1 395	50		7 520 1 520 8
	20	5097	392	7613	286	8068	743	.370 2257	1 395	40		8 594 4 595 2
	30	5489	392	7327	286	8811	743	.370 0862	1 395	30		9 668 7 669 6
	40	5880	391	7041	285	9554	743	.369 9467	1 395	20		
	50	6272	391	6756	286	0.730 0297	744	.369 8072	1 394	10		Cotangent
8	0	0.589 6663		0.807 6470		0.730 1041		1.369 6678		0	52	1410 1400
	10	7055	392	6184	286	1784	743	.369 5284	1 394	50		1 141 0 141 0
	20	7446	391	5898	286	2527	743	.369 3889	1 395	40		2 282 0 282 0
	30	7838	392	5612	286	3271	744	.369 2496	1 395	30		3 423 0 423 0
	40	8229	391	5326	286	4014	743	.369 1102	1 394	20		4 561 0 561 0
	50	8621	391	5040	286	4757	744	.368 9708	1 393	10		5 705 0 705 0
9	0	0.589 9012		0.807 4754		0.730 5501		1.368 8315		0	51	6 846 0 846 0
	10	9404	392	4468	286	6245	743	.368 6922	1 393	50		7 987 0 987 0
	20	9795	391	4182	286	6988	744	.368 5529	1 393	40		8 1128 0 1128 0
	30	0.590 0187	392	3896	286	7732	744	.368 4136	1 392	30		9 1269 0 1269 0
	40	0578	391	3610	286	8476	743	.368 2744	1 392	20		
	50	0970	391	3324	286	9219	744	.368 1351	1 392	10		1390
10	0	0.590 1361		0.807 3038		0.730 9963		1.367 9959		0	50	1 139 0
												2 278 0
												3 417 0
												4 556 0
												5 695 0
												6 834 0
												7 973 0
												8 1112 0
												9 1251 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	"	Proportional Parts

53° 50'

36° 10'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
10	0	0.590 1361		0.807 3038		0.730 9963		1.367 9959		0	50	
	10	1752	391	2752	286	0.731 0707	744	367 8567	1 392	50		
	20	2144	392	2466	286	1451	744	367 7175	1 392	40		
	30	2535	391	2179	287	2195	744	367 5784	1 391	30		
	40	2926	392	1893	286	2939	744	367 4392	1 392	20		
	50	3318	391	1607	286	3683	744	367 3001	1 391	10		
					286		745		1 391			
11	0	0.590 3709		0.807 1321		0.731 4428		1.367 1610		0	49	
	10	4100	391	1035	286	5172	744	367 0219	1 391	50		Sine
	20	4492	392	0748	287	5916	744	366 8828	1 391	40		390 391 392
	30	4883	391	0462	286	6660	744	366 7438	1 390	30		1 39 0 39 1 39 2
	40	5274	391	0176	286	7405	745	366 6047	1 391	20		2 78 0 78 2 78 4
	50	5665	392	0806 9889	287	8149	744	366 4657	1 390	10		3 117 0 117 3 117 6
					286		745		1 390			4 156 0 156 4 156 8
12	0	0.590 6057		0.806 9603		0.731 8894		1.366 3267		0	48	
	10	6448	391	9317	286	9638	744	366 1878	1 389	50		5 195 0 195 5 196 0
	20	6839	391	9030	287	0.732 0383	745	366 0488	1 390	40		6 234 0 234 6 235 2
	30	7230	391	8744	286	1127	744	365 9098	1 390	30		7 273 0 273 7 274 4
	40	7621	391	8458	286	1872	745	365 7709	1 389	20		8 312 0 312 8 313 6
	50	8013	392	8171	287	2617	745	365 6320	1 389	10		9 351 0 351 9 352 8
					286		745		1 389			
13	0	0.590 8404		0.806 7885		0.732 3362		1.365 4931		0	47	
	10	8795	391	7598	287	4106	744	365 3543	1 388	50		Cosine
	20	9186	391	7312	286	4851	745	365 2154	1 389	40		286 287 288
	30	9577	391	7025	287	5596	745	365 0766	1 388	30		1 28 6 28 7 28 8
	40	9968	391	6739	286	6341	745	364 9378	1 388	20		2 57 2 57 4 57 6
	50	0 591 0359	391	6452	287	7086	745	364 7990	1 388	10		3 85 8 86 1 86 4
					286		746		1 388			4 114 4 114 8 115 2
14	0	0 591 0750		0.806 6166		0.732 7832		1.364 6602		0	46	
	10	1141	391	5879	287	8577	745	364 5214	1 388	50		5 143 0 143 5 144 0
	20	1532	391	5593	286	9322	745	364 3827	1 387	40		6 171 6 172 2 172 8
	30	1923	392	5306	287	0 733 0067	746	364 2440	1 387	30		7 200 2 200 9 201 6
	40	2315	391	5019	286	0813	745	364 1053	1 387	20		8 228 8 229 6 230 4
	50	2706	390	4733	287	1558	745	363 9666	1 387	10		9 257 4 258 3 259 2
					287		745		1 387			
15	0	0.591 3096		0.806 4446		0.733 2303		1.363 8279		0	45	
	10	3487	391	4159	287	3049	746	363 6893	1 386	50		Tangent
	20	3878	391	3873	286	3794	745	363 5506	1 387	40		744 745
	30	4269	391	3586	287	4540	746	363 4120	1 386	30		1 74 4 74 5
	40	4660	391	3299	287	5286	746	363 2734	1 386	20		2 148 8 149 0
	50	5051	391	3012	286	6031	746	363 1349	1 385	10		3 223 2 223 5
									1 386			4 297 6 298 0
16	0	0.591 5442		0.806 2726		0.733 6777		1.362 9963		0	44	
	10	5833	391	2439	287	7523	746	362 8578	1 385	50		5 372 0 372 5
	20	6224	391	2152	287	8269	746	362 7192	1 385	40		6 446 4 447 0
	30	6615	391	1865	287	9015	746	362 5807	1 384	30		7 520 8 521 5
	40	7006	390	1578	287	9761	746	362 4423	1 386	20		8 595 2 596 0
	50	7396	391	1291	286	0.734 0507	746	362 3037	1 384	10		9 069 6 070 5
									1 384			
17	0	0.591 7787		0.806 1005		0.734 1253		1.362 1653		0	43	
	10	8178	391	0718	287	1999	746	362 0269	1 384	50		Cotangent
	20	8569	391	0431	287	2745	746	361 8885	1 384	40		1390 1380
	30	8960	390	0144	287	3491	746	361 7501	1 384	30		1 139 0 138 0
	40	9350	391	0857	287	4238	747	361 6117	1 384	20		2 278 0 276 0
	50	9741	391	9570	287	4984	746	361 4734	1 383	10		3 417 0 414 0
									1 383			4 556 0 552 0
18	0	0.592 0132		0.805 9283		0.734 5730		1.361 3350		0	42	
	10	0523	391	8996	287	6477	747	361 1967	1 383	50		5 695 0 690 0
	20	0913	390	8709	287	7223	746	361 0584	1 383	40		6 834 0 828 0
	30	1304	391	8422	287	7970	747	360 9201	1 383	30		7 973 0 966 0
	40	1695	390	8135	287	8716	746	360 7819	1 382	20		8 1112 0 1104 0
	50	2085	391	7848	288	9463	747	360 6436	1 382	10		9 1251 0 1242 0
									1 382			
19	0	0.592 2476		0.805 7660		0.735 0210		1.360 5054		0	41	
	10	2867	391	7273	287	0957	747	360 3672	1 382	50		
	20	3257	390	6986	287	1703	746	360 2290	1 382	40		
	30	3648	391	6699	287	2450	747	360 0908	1 381	30		
	40	4038	390	6412	287	3197	747	359 9527	1 381	20		
	50	4429	391	6124	288	3944	747	359 8145	1 381	10		
					287		747		1 381			
20	0	0.592 4819		0.805 5837		0.735 4691		1.359 6764		0	40	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

53° 40'

36° 20'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
20	0	0.592 4819		0.805 5837		0.735 4691		1.359 8764		0	40	
	10	5210	391	5550	287	5438	747	.359 5383	1 381	50		
	20	5601	391	5263	287	6185	747	.359 4002	1 381	40		
	30	5991	390	4975	288	6933	748	.359 2622	1 380	30		
	40	6382	391	4688	287	7680	747	.359 1241	1 381	20		
	50	6772	390	4401	287	8427	747	.358 9861	1 380	10		
			391		288		747		1 380			
21	0	0.592 7163		0.805 4113		0.735 9174		1.358 8481		0	39	Sine
	10	7553	390	3826	287	9922	748	358 7101	1 380	50		389 390 391
	20	7944	391	3539	287	0.736 0669	747	358 5721	1 380	40		1 38 9 39 0 39 1
	30	8334	390	3251	288	1417	748	358 4342	1 379	30		77 8 78 0 78 2
	40	8724	390	2964	287	2164	747	358 2962	1 380	20		116 7 117 0 117 3
	50	9115	391	2676	288	2912	748	.358 1583	1 379	10		155 6 156 0 156 4
			390		287		748		1 379			191 5 195 0 195 5
22	0	0 592 9505		0.805 2389		0.736 3660		1.358 0204		0	38	233 4 234 0 234 6
	10	9896	391	2102	287	4407	747	.357 8825	1 379	50		272 3 273 0 273 7
	20	0 593 0286	390	1814	288	5155	748	.357 7447	1 378	40		311 2 312 0 312 8
	30	0676	390	1526	288	5903	748	.357 6068	1 379	30		350 1 351 0 351 9
	40	1067	391	1239	287	6651	748	.357 4690	1 378	20		
	50	1457	390	0951	288	7399	748	.357 3312	1 378	10		
			390		287				1 378			Cosine
23	0	0.593 1847		0.805 0664		0.736 8147		1.357 1934		0	37	287 288 289
	10	2238	391	0376	288	8895	748	.357 0556	1 378	50		28 7 28 8 28 9
	20	2628	390	0089	287	9643	748	.356 9178	1 378	40		57 4 57 6 57 8
	30	3018	390	0 804 9801	288	0 737 0391	748	356 7801	1 377	30		86 1 86 4 86 7
	40	3408	391	9513	288	1139	748	.356 6424	1 377	20		114 8 115 2 115 6
	50	3799	390	9226	287	1888	749	.356 5047	1 377	10		143 5 144 0 144 5
			390		288		748		1 377			172 2 172 8 173 4
24	0	0.593 4189		0.804 8938		0.737 2636		1.356 3670		0	36	200 9 201 6 202 3
	10	4579	390	8650	288	3384	748	.356 2293	1 377	50		229 0 230 4 231 2
	20	4969	390	8363	287	4133	749	.356 0917	1 376	40		258 3 259 2 260 1
	30	5359	390	8075	288	4881	748	.355 9541	1 376	30		
	40	5750	391	7787	288	5630	749	.355 8165	1 376	20		
	50	6140	390	7499	288	6378	748	.355 6789	1 376	10		
			390		288		749		1 376			Tangent
25	0	0.593 6530		0.804 7211		0.737 7127		1.355 5413		0	35	747 748
	10	6920	390	6924	287	7876	749	.355 4037	1 376	50		74 7 74 8
	20	7310	390	6636	288	8624	748	.355 2662	1 375	40		149 4 149 6
	30	7700	390	6348	288	9373	749	.355 1287	1 375	30		224 1 224 4
	40	8090	390	6060	288	0.738 0122	749	.354 9912	1 375	20		298 8 299 2
	50	8480	391	5772	288	0871	749	.354 8537	1 375	10		373 5 374 0
									1 375			448 2 448 8
26	0	0 593 8871		0.804 5484		0.738 1620		1.354 7162		0	34	522 9 523 6
	10	9261	390	5196	288	2369	749	.354 5788	1 374	50		597 6 598 4
	20	9651	390	4908	288	3118	749	.354 4413	1 375	40		672 3 673 2
	30	0 594 0041	390	4620	288	3867	749	.354 3039	1 374	30		749 750 751
	40	0431	390	4332	288	4616	749	.354 1665	1 374	20		74 9 75 0 75 1
	50	0821	390	4044	288	5365	750	.354 0292	1 373	10		119 8 120 0 120 2
									1 374			221 7 225 0 225 3
27	0	0 594 1211		0.804 3756		0.738 6115		1.353 8918		0	33	299 6 300 0 300 4
	10	1601	390	3468	288	6864	749	.353 7545	1 374	50		374 5 375 0 375 5
	20	1991	389	3180	288	7613	750	.353 6171	1 373	40		449 4 450 0 450 6
	30	2380	390	2892	288	8363	749	.353 4798	1 373	30		521 3 525 0 525 7
	40	2770	390	2604	288	9112	750	.353 3425	1 373	20		599 2 600 0 600 8
	50	3160	390	2316	288	9862	749	.353 2053	1 372	10		674 1 675 0 675 9
									1 373			Cotangent
28	0	0.594 3550		0.804 2028		0.739 0611		1.353 0680		0	32	1380 1370
	10	3940	390	1740	288	1361	750	.352 9308	1 372	50		1 138 0 137 0
	20	4330	390	1451	289	2111	750	.352 7936	1 372	40		276 0 274 0
	30	4720	390	1163	288	2861	749	.352 6564	1 372	30		414 0 411 0
	40	5110	389	0875	288	3610	750	.352 5192	1 371	20		552 0 548 0
	50	5499	390	0587	288	4360	750	.352 3821	1 372	10		690 0 685 0
									1 372			828 0 822 0
29	0	0.594 5889		0.804 0299		0.739 5110		1.352 2449		0	31	966 0 959 0
	10	6279	390	0010	289	5860	750	.352 1078	1 371	50		1104 0 1096 0
	20	6669	390	0.803 9722	288	6610	750	.351 9707	1 371	40		1242 0 1233 0
	30	7059	389	9434	289	7360	750	.351 8336	1 371	30		
	40	7448	390	9145	288	8110	751	.351 6965	1 370	20		
	50	7838	390	8857	288	8861	750	.351 5595	1 371	10		
									1 371			
30	0	0.594 8228		0.803 8569		0.739 9611		1.351 4224		0	30	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	"	Proportional Parts

53° 30'

36° 30'

	"	Sine	Diff.	Cosine	Diff.	Tangent	Diff.	Cotangent	Diff.			Proportional Parts
30	0	0.594 8228		0.803 8569		0.739 9611		1.351 4224		0	30	
	10	8618	390	8280	289	0.740 0361	750	.351 2854	1370	50		
	20	9007	389	7992	288	1111	750	.351 1484	1370	40		
	30	9397	390	7703	289	1862	751	.351 0114	1370	30		
	40	9787	390	7415	288	2612	750	.350 8745	1369	20		
	50	0.595 0176	389	7126	288	3363	751	.350 7375	1370	10		
							750		1369			
31	0	0.595 0566		0.803 6838		0.740 4113		1.350 6006		0	29	
	10	0956	390	6549	289	4864	751	.350 4637	1369	50		Sine
	20	1345	389	6261	288	5615	751	.350 3268	1369	40		389 390
	30	1735	390	5972	289	6365	750	.350 1899	1369	30		1 38 9 39 0
	40	2124	389	5684	288	7116	751	.350 0531	1368	20		2 77 8 78 0
	50	2514	390	5395	289	7867	751	.349 9162	1369	10		3 116 7 117 0
			390		288		751		1368			4 155 6 156 0
												5 194 5 195 0
												6 233 4 234 0
												7 272 3 273 0
												8 311 2 312 0
												9 350 1 351 0
32	0	0.595 2904		0.803 6107		0 740 8618		1.349 7794		0	28	
	10	3293	389	4818	289	9369	751	.349 6426	1368	50		
	20	3683	390	4529	289	0 741 0120	751	.349 5058	1368	40		
	30	4072	389	4241	288	0871	751	.349 3691	1367	30		
	40	4462	390	3952	289	1622	751	.349 2323	1368	20		
	50	4851	389	3663	289	2373	751	.349 0956	1367	10		
			390		288		751		1367			Cosine
												288 289 290
33	0	0.595 5241		0.803 3375		0.741 3124		1 348 9589		0	27	
	10	5630	389	3086	289	3876	752	.348 8222	1367	50		1 28 8 28 9 29 0
	20	6019	389	2797	289	4627	751	.348 6855	1367	40		2 57 6 57 8 58 0
	30	6409	390	2508	289	5378	751	.348 5489	1366	30		3 86 4 86 7 87 0
	40	6798	389	2220	288	6130	752	.348 4122	1367	20		4 115 2 115 6 116 0
	50	7188	390	1931	289	6881	751	.348 2756	1366	10		5 144 0 144 5 145 0
			389		289		752		1366			6 172 8 173 4 174 0
												7 201 6 202 3 203 0
												8 230 4 231 2 232 0
												9 259 2 260 1 261 0
34	0	0.595 7577		0.803 1642		0.741 7633		1 348 1390		0	26	
	10	7967	390	1353	289	8384	751	.348 0024	1366	50		
	20	8356	389	1064	289	9136	752	.347 8658	1366	40		
	30	8745	389	0776	288	9888	752	.347 7293	1365	30		
	40	9135	390	0487	289	0.742 0639	751	.347 5928	1365	20		
	50	9524	389	0198	289	1391	752	.347 4562	1366	10		
												Tangent
												750 751
35	0	0.595 9913		0.802 9909		0.742 2143		1.347 3198		0	25	
	10	0.596 0302	389	9620	289	2895	752	.347 1833	1365	50		1 75 0 75 1
	20	0692	390	9331	289	3647	752	.347 0468	1365	40		2 150 0 150 2
	30	1081	389	9042	289	4399	752	.346 9104	1364	30		3 225 0 225 3
	40	1470	390	8753	289	5151	752	.346 7739	1364	20		4 300 0 300 4
	50	1860	389	8464	289	5903	752	.346 6375	1364	10		5 375 0 375 5
												6 450 0 450 6
												7 525 0 525 7
												8 600 0 600 8
												9 675 0 675 9
36	0	0.596 2249		0.802 8175		0.742 6655		1.346 5011		0	24	
	10	2638	389	7886	289	7408	753	.346 3648	1363	50		
	20	3027	389	7597	289	8160	752	.346 2284	1364	40		
	30	3416	389	7307	290	8912	752	.346 0921	1363	30		
	40	3806	390	7018	289	9665	753	.345 9558	1363	20		
	50	4195	389	6729	289	0 743 0417	752	.345 8195	1363	10		
							753		1363			
37	0	0.596 4584		0.802 6440		0.743 1170		1.345 6832		0	23	
	10	4973	389	6151	289	1922	752	.345 5469	1363	50		
	20	5362	389	5862	289	2675	753	.345 4107	1362	40		
	30	5751	389	5572	290	3428	753	.345 2744	1363	30		
	40	6140	389	5283	289	4180	752	.345 1382	1362	20		
	50	6529	389	4994	289	4933	753	.345 0020	1362	10		
												Cotangent
												1370 1360
38	0	0.596 6918		0.802 4705		0.743 5686		1.344 8658		0	22	
	10	7307	389	4415	290	6439	753	.344 7297	1361	50		1 137 0 136 0
	20	7696	389	4126	289	7192	753	.344 5935	1362	40		2 271 0 272 0
	30	8085	389	3837	289	7945	753	.344 4574	1361	30		3 411 0 408 0
	40	8474	389	3547	290	8698	753	.344 3213	1361	20		4 548 0 544 0
	50	8863	389	3258	289	9451	753	.344 1852	1360	10		5 685 0 680 0
												6 822 0 816 0
												7 959 0 952 0
												8 1096 0 1088 0
												9 1233 0 1224 0
39	0	0.596 9252		0.802 2969		0.744 0204		1.344 0492		0	21	
	10	9641	389	2679	290	0957	753	.343 9131	1361	50		
	20	0.597 0030	389	2390	289	1711	754	.343 7771	1360	40		
	30	0419	389	2100	289	2464	753	.343 6411	1360	30		
	40	0808	389	1811	290	3217	754	.343 5051	1360	20		
	50	1197	389	1521	289	3971	753	.343 3691	1360	10		
40	0	0.597 1586		0.802 1232		0.744 4724		1.343 2331		0	20	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	"	Proportional Parts

36° 40'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
40	0	0.597 1586	389	0.802 1232	290	0.744 4724	754	1.343 2331	1 359	0	20	
	10	1975	389	0942	290	5478	753	.343 0972	1 360	50		
	20	2364	388	0653	289	6231	754	.342 9612	1 359	40		
	30	2752	388	0363	290	6985	754	.342 8253	1 359	30		
	40	3141	389	0074	289	7739	754	.342 6894	1 359	20		
	50	3530	389	0.801 9784	290	8492	753	.342 5536	1 358	10		
			389		289		754		1 359			
41	0	0.597 3919	389	0.801 9495	290	0 744 9246	754	1.342 4177	1 358	0	19	
	10	4308	389	9205	290	0.745 0000	754	.342 2819	1 359	50		
	20	4697	388	8915	289	0754	754	.342 1460	1 358	40		
	30	5085	388	8626	290	1508	754	.342 0102	1 358	30		
	40	5474	389	8336	290	2262	754	.341 8744	1 357	20		
	50	5863	388	8046	290	3016	754	.341 7387	1 358	10		
			388		290							
42	0	0.597 6251	389	0.801 7766	289	0.745 3770	754	1.341 6029	1 357	0	18	
	10	6640	389	7467	290	4524	755	.341 4672	1 357	50		
	20	7029	389	7177	290	5279	754	.341 3315	1 357	40		
	30	7418	388	6887	290	6033	754	.341 1958	1 357	30		
	40	7806	389	6597	289	6787	755	.341 0601	1 357	20		
	50	8195	389	6308	289	7542	754	.340 9244	1 357	10		
			388		290				1 356			
43	0	0.597 8583	389	0.801 6018	290	0.745 8296	755	1.340 7888	1 356	0	17	
	10	8972	389	5728	290	9051	754	.340 6532	1 357	50		
	20	9361	389	5438	290	9805	755	.340 5175	1 357	40		
	30	9749	388	5148	290	0.746 0560	755	.340 3820	1 355	30		
	40	0 598 0138	389	4858	290	1315	754	.340 2464	1 356	20		
	50	0526	388	4568	290	2069	755	.340 1108	1 356	10		
			389		290				1 355			
44	0	0.598 0915	389	0.801 4278	290	0.746 2824	755	1.339 9753	1 355	0	16	
	10	1304	388	3988	290	3579	755	.339 8398	1 355	50		
	20	1692	388	3698	290	4334	755	.339 7043	1 355	40		
	30	2081	389	3408	290	5089	755	.339 5688	1 355	30		
	40	2469	388	3118	290	5844	755	.339 4333	1 355	20		
	50	2858	389	2828	290	6599	755	.339 2978	1 355	10		
			388		290				1 354			
45	0	0.598 3246	388	0.801 2538	290	0.746 7364	755	1.339 1624	1 354	0	15	
	10	3634	389	2248	290	8109	756	.339 0270	1 354	50		
	20	4023	389	1958	290	8865	756	.338 8916	1 354	40		
	30	4411	388	1668	290	9620	755	.338 7562	1 354	30		
	40	4800	389	1378	290	0.747 0375	756	.338 6208	1 354	20		
	50	5188	388	1088	291	1131	755	.338 4855	1 353	10		
			389		291				1 353			
46	0	0.598 5577	388	0.801 0797	290	0.747 1886	756	1.338 3502	1 353	0	14	
	10	5965	388	0507	290	2642	755	.338 2149	1 353	50		
	20	6353	389	0217	290	3397	756	.338 0796	1 353	40		
	30	6742	388	0.800 9927	291	4153	755	.337 9443	1 353	30		
	40	7130	388	9636	290	4908	756	.337 8090	1 352	20		
	50	7518	388	9346	290	5664	756	.337 6738	1 352	10		
			388		290				1 352			
47	0	0.598 7906	389	0.800 9056	290	0.747 6420	756	1.337 5386	1 352	0	13	
	10	8295	388	8766	291	7176	756	.337 4034	1 352	50		
	20	8683	388	8475	290	7932	756	.337 2682	1 352	40		
	30	9071	389	8185	290	8688	756	.337 1330	1 352	30		
	40	9460	389	7895	291	9444	756	.336 9978	1 352	20		
	50	9848	388	7604	290	0.748 0200	756	.336 8627	1 351	10		
			388		290				1 351			
48	0	0.599 0236	388	0.800 7314	291	0.748 0956	756	1.336 7276	1 351	0	12	
	10	0624	389	7023	290	1712	756	.336 5925	1 351	50		
	20	1012	388	6733	290	2468	756	.336 4574	1 351	40		
	30	1401	389	6442	291	3224	757	.336 3223	1 351	30		
	40	1789	388	6152	290	3981	756	.336 1873	1 350	20		
	50	2177	388	5861	290	4737	757	.336 0523	1 351	10		
			388		290				1 351			
49	0	0.599 2565	388	0.800 5571	291	0.748 5494	756	1.335 9172	1 350	0	11	
	10	2953	388	5280	290	6250	757	.335 7822	1 349	50		
	20	3341	388	4990	291	7007	756	.335 6473	1 350	40		
	30	3729	388	4699	290	7763	757	.335 5123	1 349	30		
	40	4117	388	4409	290	8520	757	.335 3774	1 350	20		
	50	4505	388	4118	291	9277	756	.335 2424	1 349	10		
			388		291				1 349			
50	0	0.599 4893		0.800 3827		0.749 0033		1.335 1075		0	10	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

53° 10'

36° 50'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
50	0	0.599 4893		0.800 3827		0.749 0033		1.335 1075		0	10	
	10	5281	388	3537	290	0790	757	.334 9726	1 349	50		
	20	5669	388	3246	291	1547	757	.334 8378	1 348	40		
	30	6057	388	2955	291	2304	757	.334 7029	1 349	30		
	40	6445	388	2665	290	3061	757	.334 5681	1 348	20		
	50	6833	388	2374	291	3818	757	.334 4332	1 349	10		
			388		291		757		1 348			
51	0	0 599 7221		0.800 2083		0.749 4575		1.334 2984		0	9	
	10	7609	388	1792	291	5332	757	.334 1637	1 347	50		Sine
	20	7997	388	1502	290	6090	758	.334 0289	1 348	40		387 388
	30	8385	388	1211	291	6847	757	.333 8941	1 348	30		1 38 7 38 8
	40	8773	388	0920	291	7604	757	.333 7594	1 347	20		2 77 4 77 6
	50	9161	388	0629	291	8361	757	.333 6247	1 347	10		3 116 1 116 4
			388		291		758		1 347			4 154 8 155 2
52	0	0.599 9549		0 800 0338		0.749 9119		1 333 4900		0	8	
	10	9937	388	0047	291	9876	757	.333 3553	1 347	50		5 193 5 194 0
	20	0 600 0325	388	0 799 9757	290	0 750 0634	758	.333 2206	1 347	40		6 232 2 232 8
	30	0712	388	9466	291	1392	757	.333 0860	1 346	30		7 270 9 271 6
	40	1100	388	9175	291	2149	757	.332 9514	1 346	20		8 309 6 310 4
	50	1488	388	8884	291	2907	758	.332 8168	1 346	10		9 348 3 349 2
			388		291		758		1 346			
53	0	0 600 1876		0.799 8593		0.750 3665		1 332 6822		0	7	
	10	2264	388	8302	291	4422	757	.332 5476	1 346	50		Cosine
	20	2651	387	8011	291	5180	758	.332 4130	1 346	40		290 291 292
	30	3039	388	7720	291	5938	758	.332 2785	1 345	30		1 29 0 29 1 29 2
	40	3427	388	7429	291	6696	758	.332 1440	1 345	20		2 58 0 58 2 58 4
	50	3815	387	7138	291	7454	758	.332 0094	1 346	10		3 87 0 87 3 87 6
			387		291		758		1 344			4 116 0 116 4 116 8
54	0	0.600 4202		0.799 6847		0.750 8212		1.331 8750		0	6	
	10	4590	388	6555	292	8971	759	.331 7405	1 345	50		5 145 0 145 5 146 0
	20	4978	388	6264	291	9729	758	.331 6060	1 345	40		6 174 0 174 6 175 2
	30	5365	387	5973	291	0 751 0487	758	.331 4716	1 344	30		7 203 0 203 7 204 4
	40	5753	388	5682	291	1245	758	.331 3372	1 344	20		8 232 0 232 8 233 6
	50	6141	388	5391	291	2004	759	.331 2028	1 344	10		9 261 0 261 9 262 8
			387		291		758		1 344			
55	0	0.600 6528		0.799 5100		0.751 2762		1.331 0684		0	5	
	10	6916	388	4808	292	3521	759	.330 9340	1 344	50		Tangent
	20	7303	387	4517	291	4279	758	.330 7997	1 343	40		757 758
	30	7691	388	4226	291	5038	759	.330 6653	1 344	30		1 151 4 151 6
	40	8079	388	3935	291	5796	758	.330 5310	1 343	20		2 227 1 227 4
	50	8466	387	3643	292	6555	759	.330 3967	1 343	10		3 302 8 303 2
			388		291		759		1 343			4 378 5 379 0
56	0	0.600 8854		0.799 3352		0.751 7314		1.330 2624		0	4	
	10	9241	387	3061	291	8073	759	.330 1282	1 342	50		5 454 2 454 8
	20	9629	388	2769	292	8831	758	.329 9939	1 343	40		6 529 9 530 6
	30	0 601 0016	387	2478	291	9590	759	.329 8597	1 342	30		7 605 6 606 4
	40	0404	388	2187	292	0 752 0349	759	.329 7255	1 342	20		8 681 3 682 2
	50	0791	387	1895	291	1108	759	.329 5913	1 342	10		9 759 760 761
			388		291		759		1 342			
57	0	0.601 1179		0.799 1604		0.752 1867		1 329 4571		0	3	
	10	1566	387	1312	292	2627	760	.329 3229	1 342	50		Cotangent
	20	1953	387	1021	291	3386	759	.329 1888	1 341	40		1350 1340
	30	2341	388	0730	291	4145	759	.329 0547	1 341	30		1 135 0 134 0
	40	2728	387	0438	292	4904	759	.328 9205	1 342	20		2 270 0 268 0
	50	3116	388	0147	291	5664	760	.328 7865	1 340	10		3 405 0 402 0
			387		292		759		1 341			4 540 0 536 0
58	0	0.601 3503		0.798 9855		0.752 6423		1.328 6524		0	2	
	10	3890	387	9563	292	7183	760	.328 5183	1 341	50		5 675 0 670 0
	20	4278	388	9272	291	7942	759	.328 3843	1 340	40		6 810 0 804 0
	30	4665	387	8980	292	8702	760	.328 2503	1 340	30		7 945 0 938 0
	40	5052	387	8689	292	9461	759	.328 1162	1 341	20		8 1080 0 1072 0
	50	5440	388	8397	292	0 753 0221	760	.327 9823	1 340	10		9 1215 0 1206 0
			387		292		760		1 340			
59	0	0 601 5827		0.798 8105		0 753 0981		1.327 8483		0	1	
	10	6214	387	7814	291	1741	760	.327 7143	1 340	50		
	20	6601	387	7522	292	2500	759	.327 5804	1 339	40		
	30	6989	388	7230	291	3260	760	.327 4465	1 339	30		
	40	7376	387	6939	291	4020	760	.327 3126	1 339	20		
	50	7763	387	6647	292	4780	761	.327 1787	1 339	10		
			387		292		761		1 339			
60	0	0.601 8150		0.798 6355		0.753 5541		1.327 0448		0	0	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff.	"	'	Proportional Parts

53° 0'

37° 0'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
0	0	0.601 8150		0.798 6355		0.753 5541		1.327 0448		0	60	
	10	8537	387	6063	292	6301	760	.326 9110	1 338	50		
	20	8925	388	5772	291	7061	760	.326 7771	1 339	40		
	30	9312	387	5480	292	7821	760	.326 6433	1 338	30		
	40	9699	387	5188	292	8581	760	.326 5095	1 338	20		
	50	0.602 0086	387	4896	292	9342	761	.326 3757	1 338	10		
			387		292		760		1 337			
1	0	0.602 0473		0.798 4604		0.754 0102		1.326 2420		0	59	
	10	0860	387	4312	292	0863	761	.326 1082	1 338	50		Sine
	20	1247	387	4020	292	1623	760	.325 9745	1 337	40		386 387 388
	30	1634	387	3728	292	2384	761	.325 8408	1 337	30		1 38 6 38 7 38 8
	40	2021	387	3436	291	3144	760	.325 7071	1 337	20		77 2 77 4 77 6
	50	2408	387	3145	292	3905	761	.325 5734	1 337	10		115 8 116 1 116 4
			387		292		761		1 337			154 4 154 8 155 2
2	0	0.602 2795		0.798 2863		0.754 4666		1.325 4397		0	58	
	10	3182	387	2561	292	5427	761	.325 3061	1 336	50		193 0 193 5 194 0
	20	3569	387	2269	292	6188	761	.325 1725	1 336	40		231 6 232 2 232 8
	30	3956	387	1976	293	6948	760	.325 0389	1 336	30		270 2 270 9 271 6
	40	4343	387	1684	292	7709	761	.324 9053	1 336	20		308 8 309 6 310 4
	50	4730	387	1392	292	8470	762	.324 7717	1 336	10		347 4 348.3 349.2
			387		292		762		1 336			
3	0	0.602 6117		0.798 1100		0.754 9232		1.324 6381		0	57	
	10	5504	387	0808	292	9993	761	.324 5046	1 335	50		Cosine
	20	5891	387	0516	292	0754	761	.324 3711	1 335	40		291 292 293
	30	6278	387	0224	292	1515	761	.324 2376	1 335	30		29 1 29 2 29 3
	40	6665	387	0797 9932	293	2276	761	.324 1041	1 335	20		58 2 58 4 58 6
	50	7052	387	9639	292	3038	762	.323 9706	1 335	10		87 3 87 6 87 9
			387		292		761		1 335			116 4 116 8 117 2
4	0	0.602 7439		0.797 9347		0.755 3799		1.323 8371		0	56	
	10	7826	387	9055	292	4561	762	.323 7037	1 334	50		145 5 146 0 146 5
	20	8212	386	8763	292	5322	761	.323 5703	1 334	40		174 6 175 2 175 8
	30	8599	387	8471	292	6084	762	.323 4369	1 334	30		203 7 204 4 205 1
	40	8986	387	8178	293	6845	761	.323 3035	1 334	20		232 8 233 6 234 4
	50	9373	387	7886	292	7607	762	.323 1701	1 334	10		261 9 262.8 263 7
			387		292		762		1 333			
5	0	0.602 9760		0.797 7594		0.755 8369		1.323 0368		0	55	
	10	0.603 0146	386	7301	293	9131	762	.322 9034	1 334	50		Tangent
	20	0533	387	7009	292	9893	762	.322 7701	1 333	40		760 761
	30	0920	387	6717	292	0654	761	.322 6368	1 333	30		1 152 0 152 2
	40	1306	386	6424	293	1416	762	.322 5035	1 333	20		228 0 228 3
	50	1693	387	6132	292	2179	763	.322 3703	1 332	10		304 0 304 4
			387		293		762		1 333			380 5 380 5
6	0	0.603 2080		0.797 5839		0.756 2941		1.322 2370		0	54	
	10	2467	387	5547	292	3703	762	.322 1038	1 332	50		456 0 456 6
	20	2853	386	5254	293	4465	762	.321 9706	1 332	40		532 7 532 7
	30	3240	386	4962	292	5227	763	.321 8374	1 332	30		608 0 608 8
	40	3626	387	4669	292	5990	762	.321 7042	1 332	20		684 0 684 9
	50	4013	387	4377	293	6752	762	.321 5710	1 331	10		
			387		293		762		1 331			
7	0	0.603 4400		0.797 4084		0.756 7514		1.321 4379		0	53	
	10	4786	386	3792	292	8277	763	.321 3047	1 332	50		Cotangent
	20	5173	386	3499	292	9039	762	.321 1716	1 331	40		1340 1330
	30	5559	386	3207	292	9802	763	.321 0385	1 331	30		1 134 0 133 0
	40	5946	387	2914	293	0565	763	.320 9054	1 331	20		268 0 266 0
	50	6332	387	2621	292	1327	762	.320 7724	1 330	10		402 0 399 0
			387		292		763		1 331			536 0 532 0
8	0	0.603 6719		0.797 2329		0.757 2090		1.320 6393		0	52	
	10	7106	387	2036	293	2853	763	.320 5063	1 330	50		670 0 665 0
	20	7492	386	1743	292	3616	763	.320 3733	1 330	40		804 0 798 0
	30	7878	386	1451	293	4379	763	.320 2403	1 330	30		938 0 931 0
	40	8265	387	1158	293	5142	763	.320 1073	1 329	20		1072 0 1064 0
	50	8651	386	0865	293	5905	763	.319 9744	1 330	10		1206 0 1197 0
			387		293		763		1 330			
9	0	0.603 9038		0.797 0572		0.757 6668		1.319 8414		0	51	
	10	9424	386	0279	293	7431	763	.319 7085	1 329	50		
	20	9811	387	0796 9987	292	8194	763	.319 5756	1 329	40		
	30	0.604 0197	386	9694	293	8957	763	.319 4427	1 329	30		
	40	0583	387	9401	293	9721	764	.319 3098	1 329	20		
	50	0970	386	9108	293	0758 0484	764	.319 1770	1 329	10		
			386		293		764		1 329			
10	0	0.604 1356		0.796 8815		0.758 1248		1.319 0441		0	50	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

52° 50'

37° 10'

	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
10	0	0.604 1356		0.796 8815		0.758 1248		1.319 0441		0	50	
	10	1742	386	8522	293	2011	763	.318 9113	1 328	50		
	20	2129	387	8229	293	2775	764	.318 7785	1 328	40		
	30	2515	386	7936	293	3538	763	.318 6457	1 328	30		
	40	2901	386	7644	292	4302	764	.318 5129	1 328	20		
	50	3288	387	7351	293	5066	764	.318 3802	1 327	10		
			386		293		763		1 328			
11	0	0 604 3674		0.796 7058		0.758 5829		1.318 2474		0	49	
	10	4060	386	6765	293	6593	764	.318 1147	1 327	50		
	20	4446	386	6472	293	7357	764	.317 9820	1 327	40		
	30	4833	387	6178	294	8121	764	.317 8493	1 327	30		
	40	5219	386	5885	293	8885	764	.317 7166	1 327	20		
	50	5605	386	5592	293	9649	764	.317 5840	1 326	10		
			386		293		764		1 327			
12	0	0.604 5991		0.796 5299		0.759 0413		1.317 4513		0	48	
	10	6377	386	5006	293	1177	764	.317 3187	1 326	50		
	20	6763	386	4713	293	1942	765	.317 1861	1 326	40		
	30	7150	387	4420	293	2706	764	.317 0535	1 326	30		
	40	7536	386	4127	293	3470	764	.316 9210	1 325	20		
	50	7922	386	3833	294	4235	765	.316 7884	1 325	10		
			386		293		764		1 325			
13	0	0.604 8308		0.796 3540		0.759 4999		1.316 6559		0	47	
	10	8694	386	3247	293	5763	764	.316 5234	1 325	50		
	20	9080	386	2954	293	6528	765	.316 3909	1 325	40		
	30	9466	386	2660	294	7293	765	.316 2584	1 325	30		
	40	9852	386	2367	293	8057	764	.316 1259	1 325	20		
	50	0.605 0238	386	2074	294	8822	765	.315 9934	1 325	10		
			386		294		765		1 324			
14	0	0.605 0624		0.796 1780		0.759 9587		1.315 8610		0	46	
	10	1010	386	1487	293	0.760 0352	765	.315 7286	1 324	50		
	20	1396	386	1194	293	1117	765	.315 5962	1 324	40		
	30	1782	386	0900	294	1882	765	.315 4638	1 324	30		
	40	2168	386	0607	293	2647	765	.315 3314	1 324	20		
	50	2554	386	0313	294	3412	765	.315 1991	1 323	10		
			386		293		765		1 323			
15	0	0.605 2940		0.796 0020		0.760 4177		1.315 0668		0	45	
	10	3326	386	0.795 9727	293	4942	765	.314 9344	1 324	50		
	20	3712	386	9433	294	5707	765	.314 8021	1 323	40		
	30	4098	386	9140	293	6472	765	.314 6699	1 323	30		
	40	4483	386	8846	294	7238	766	.314 5376	1 323	20		
	50	4869	386	8553	293	8003	765	.314 4053	1 323	10		
			386		294		766		1 322			
16	0	0.605 5255		0.795 8259		0.760 8769		1.314 2731		0	44	
	10	5641	386	7965	294	9534	765	.314 1409	1 322	50		
	20	6027	386	7672	293	0.761 0300	766	.314 0087	1 322	40		
	30	6413	386	7378	294	1065	765	.313 8765	1 322	30		
	40	6798	385	7085	293	1831	766	.313 7444	1 321	20		
	50	7184	386	6791	294	2597	766	.313 6122	1 321	10		
			386		294		766		1 321			
17	0	0 605 7570		0.795 6497		0.761 3363		1.313 4801		0	43	
	10	7956	386	6204	293	4128	765	.313 3480	1 321	50		
	20	8341	386	5910	294	4894	766	.313 2159	1 321	40		
	30	8727	386	5616	294	5660	766	.313 0838	1 321	30		
	40	9113	385	5322	293	6426	766	.312 9517	1 321	20		
	50	9498	386	5029	294	7192	767	.312 8197	1 321	10		
			386		294		767		1 321			
18	0	0.605 9884		0.795 4735		0.761 7959		1.312 6876		0	42	
	10	0 606 0270	386	4441	294	8725	766	.312 5556	1 320	50		
	20	0655	385	4147	294	9491	766	.312 4236	1 320	40		
	30	1041	386	3853	294	0 762 0257	766	.312 2916	1 320	30		
	40	1427	385	3559	293	1024	767	.312 1597	1 319	20		
	50	1812	386	3266	294	1790	767	.312 0277	1 319	10		
			386		294		767		1 319			
19	0	0.606 2198		0.795 2972		0.762 2557		1.311 8958		0	41	
	10	2583	385	2678	294	3323	766	.311 7639	1 319	50		
	20	2969	386	2384	294	4090	767	.311 6320	1 319	40		
	30	3354	385	2090	294	4856	767	.311 5001	1 319	30		
	40	3740	386	1796	294	5623	767	.311 3683	1 318	20		
	50	4125	385	1502	294	6390	767	.311 2364	1 318	10		
			386		294		767		1 318			
20	0	0.606 4511		0.795 1208		0.762 7157		1.311 1046		0	40	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	"	Proportional Parts

52° 40'

37° 20'

'	"	Sine	Diff.	Cosine	Diff.	Tangent	Diff.	Cotangent	Diff.			Proportional Parts
20	0	0.606 4511		0.795 1208		0.762 7157		1.311 1046		0	40	
	10	4896	385	0914	294	7924	767	.310 9728	1 318	50		
	20	5282	386	0620	294	8690	766	.310 8410	1 318	40		
	30	5667	385	0326	294	9457	767	.310 7092	1 318	30		
	40	6053	386	0032	294	0.763 0224	767	.310 5774	1 318	20		
	50	6438	385	0.794 9738	294	0992	768	.310 4457	1 317	10		
			386				767		1 317			
21	0	0.606 6824		0.794 9444		0.763 1759		1.310 3140		0	39	
	10	7209	385	9149	295	2526	767	.310 1822	1 318	50		
	20	7594	385	8855	294	3293	767	.310 0506	1 316	40		
	30	7980	386	8561	294	4061	768	.309 9189	1 317	30		
	40	8365	385	8267	294	4828	767	.309 7872	1 317	20		
	50	8750	385	7973	294	5595	767	.309 6556	1 316	10		
			386		295		768		1 317			
22	0	0.606 9136		0.794 7678		0.763 6363		1.309 5239		0	38	
	10	9521	385	7384	294	7130	767	.309 3923	1 316	50		
	20	9906	385	7090	294	7898	768	.309 2607	1 316	40		
	30	0.607 0292	386	6796	294	8666	768	.309 1292	1 315	30		
	40	0677	385	6501	295	9433	767	.308 9976	1 316	20		
	50	1062	385	6207	294	0.764 0201	768	.308 8660	1 316	10		
			385		294		768		1 315			
23	0	0.607 1447		0.794 5913		0.764 0969		1.308 7345		0	37	
	10	1833	386	5618	295	1737	768	.308 6030	1 315	50		
	20	2218	385	5324	294	2505	768	.308 4715	1 315	40		
	30	2603	385	5030	294	3273	768	.308 3400	1 315	30		
	40	2988	385	4735	295	4041	768	.308 2086	1 314	20		
	50	3373	385	4441	294	4809	768	.308 0771	1 315	10		
			385		295		768		1 314			
24	0	0.607 3768		0.794 4146		0.764 5677		1.307 9457		0	36	
	10	4144	386	3852	294	6346	769	.307 8143	1 314	50		
	20	4529	385	3557	295	7114	768	.307 6829	1 314	40		
	30	4914	385	3263	294	7882	768	.307 5515	1 314	30		
	40	5299	385	2968	295	8651	769	.307 4202	1 313	20		
	50	5684	385	2674	294	9419	768	.307 2888	1 314	10		
			385		295		769		1 313			
25	0	0.607 6069		0.794 2379		0.765 0188		1.307 1575		0	35	
	10	6454	385	2084	295	0956	768	.307 0262	1 313	50		
	20	6839	385	1790	294	1725	769	.306 8949	1 313	40		
	30	7224	385	1495	295	2494	769	.306 7636	1 313	30		
	40	7609	385	1201	294	3262	768	.306 6323	1 313	20		
	50	7994	385	0906	295	4031	769	.306 5011	1 312	10		
			385		295		769		1 312			
26	0	0.607 8379		0.794 0611		0.765 4800		1.306 3699		0	34	
	10	8764	385	0317	294	5569	769	.306 2387	1 312	50		
	20	9149	385	0022	295	6338	769	.306 1075	1 312	40		
	30	9534	385	0.793 9727	295	7107	769	.305 9763	1 312	30		
	40	9919	385	9432	295	7876	769	.305 8451	1 312	20		
	50	0.608 0304	385	9138	294	8645	769	.305 7140	1 311	10		
			385		295		769		1 312			
27	0	0.608 0689		0.793 8843		0.765 9414		1.305 5828		0	33	
	10	1074	385	8548	295	0.766 0184	770	.305 4517	1 311	50		
	20	1458	384	8253	295	0953	769	.305 3206	1 311	40		
	30	1843	385	7958	295	1722	769	.305 1896	1 310	30		
	40	2228	385	7663	295	2492	770	.305 0585	1 310	20		
	50	2613	385	7369	294	3261	769	.304 9275	1 311	10		
			385		295		770		1 311			
28	0	0.608 2998		0.793 7074		0.766 4031		1.304 7964		0	32	
	10	3383	385	6779	295	4800	769	.304 6654	1 310	50		
	20	3767	384	6484	295	5570	770	.304 5344	1 310	40		
	30	4152	385	6189	295	6340	770	.304 4034	1 310	30		
	40	4537	385	5894	295	7110	770	.304 2725	1 309	20		
	50	4922	385	5599	295	7879	769	.304 1415	1 310	10		
			384		295		770		1 309			
29	0	0.608 5306		0.793 5304		0.766 8649		1.304 0106		0	31	
	10	5691	385	5009	295	9419	770	.303 8797	1 309	50		
	20	6076	385	4714	295	0.767 0189	770	.303 7488	1 309	40		
	30	6460	384	4419	295	0959	770	.303 6179	1 309	30		
	40	6845	385	4124	295	1729	771	.303 4870	1 309	20		
	50	7230	384	3829	296	2500	770	.303 3562	1 308	10		
30	0	0.608 7614		0.793 3533		0.767 3270		1.303 2254		0	30	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

52° 30'

37° 30'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff.			Proportional Parts
30	0	0.608 7614		0.793 3533		0.767 3270		1.303 2254		0	30	
	10	7999	385	3238	295	4040	770	.303 0946	1 308	50		
	20	8384	385	2943	295	4811	771	.302 9638	1 308	40		
	30	8768	384	2648	295	5581	770	.302 8330	1 308	30		
	40	9153	385	2353	295	6351	770	.302 7022	1 308	20		
	50	9537	384	2057	296	7122	771	.302 5715	1 307	10		
			385		295		771		1 308			
31	0	0 608 9922		0.793 1762		0.767 7893		1.302 4407		0	29	
	10	0 609 0306	384	1467	295	8663	770	.302 3100	1 307	50		
	20	0691	385	1172	295	9434	771	.302 1793	1 307	40		
	30	1075	384	0876	296	0.768 0205	771	.302 0486	1 307	30		
	40	1460	385	0581	295	0975	770	.301 9180	1 306	20		
	50	1844	384	0286	295	1746	771	.301 7873	1 307	10		
			385		296		771		1 306			
32	0	0.609 2229		0.792 9990		0.768 2517		1.301 6567		0	28	
	10	2613	384	9695	295	3288	771	.301 5261	1 306	50		
	20	2998	385	9400	295	4059	771	.301 3955	1 306	40		
	30	3382	384	9104	296	4830	771	.301 2649	1 306	30		
	40	3767	385	8809	295	5602	772	.301 1343	1 306	20		
	50	4151	384	8513	296	6373	771	.301 0038	1 305	10		
			384		295		771		1 305			
33	0	0.609 4535		0.792 8218		0.768 7144		1.300 8733		0	27	
	10	4920	385	7922	296	7915	771	.300 7427	1 306	50		
	20	5304	384	7627	295	8687	772	.300 6122	1 305	40		
	30	5688	384	7331	295	9458	771	.300 4818	1 304	30		
	40	6073	385	7036	296	0.769 0230	772	.300 3513	1 305	20		
	50	6457	384	6740	296	1001	771	.300 2208	1 305	10		
			384		295		772		1 304			
34	0	0.609 6841		0.792 6445		0.769 1773		1.300 0904		0	26	
	10	7226	385	6149	296	2545	772	.299 9600	1 304	50		
	20	7610	384	5854	295	3316	771	.299 8296	1 304	40		
	30	7994	384	5558	296	4088	772	.299 6992	1 304	30		
	40	8378	384	5262	295	4860	772	.299 5688	1 304	20		
	50	8762	385	4967	296	5632	772	.299 4385	1 303	10		
			385		296		772		1 304			
35	0	0.609 9147		0.792 4671		0.769 6404		1.299 3081		0	25	
	10	9531	384	4375	296	7176	772	.299 1778	1 303	50		
	20	9915	384	4080	295	7948	772	.299 0475	1 303	40		
	30	0 610 0299	384	3784	296	8720	772	.298 9172	1 303	30		
	40	0683	384	3488	296	9492	772	.298 7870	1 302	20		
	50	1068	385	3192	296	0.770 0264	772	.298 6567	1 303	10		
			384		296		773		1 302			
36	0	0 610 1452		0.792 2896		0.770 1037		1.298 5265		0	24	
	10	1836	384	2601	295	1809	772	.298 3962	1 303	50		
	20	2220	384	2305	296	2582	773	.298 2660	1 302	40		
	30	2604	384	2009	296	3354	772	.298 1359	1 301	30		
	40	2988	384	1713	296	4127	773	.298 0057	1 302	20		
	50	3372	384	1417	296	4899	772	.297 8755	1 302	10		
			384		296		773		1 301			
37	0	0.610 3756		0.792 1121		0.770 5672		1.297 7454		0	23	
	10	4140	384	0825	296	6444	772	.297 6153	1 301	50		
	20	4524	384	0529	296	7217	773	.297 4852	1 301	40		
	30	4908	384	0233	296	7990	773	.297 3551	1 301	30		
	40	5292	384	0.791 9937	296	8763	773	.297 2250	1 301	20		
	50	5676	384	9641	296	9536	773	.297 0949	1 301	10		
			384		296		773		1 300			
38	0	0.610 6060		0.791 9345		0.771 0309		1.296 9649		0	22	
	10	6444	384	9049	296	1082	773	.296 8349	1 300	50		
	20	6828	384	8753	296	1855	773	.296 7049	1 300	40		
	30	7212	384	8457	296	2628	773	.296 5749	1 300	30		
	40	7596	384	8161	296	3402	774	.296 4449	1 300	20		
	50	7979	383	7865	296	4175	773	.296 3149	1 300	10		
			384		296		773		1 299			
39	0	0.610 8363		0.791 7569		0.771 4948		1.296 1850		0	21	
	10	8747	384	7273	296	5722	774	.296 0551	1 299	50		
	20	9131	384	6977	296	6495	773	.295 9252	1 299	40		
	30	9515	384	6680	297	7269	774	.295 7953	1 299	30		
	40	9899	384	6384	296	8042	773	.295 6654	1 299	20		
	50	0.611 0282	383	6088	296	8816	774	.295 5355	1 299	10		
			384		296		773		1 298			
40	0	0.611 0666		0.791 5792		0.771 9589		1.295 4057		0	20	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

52° 20'

37° 40'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
40	0	0.611 0666		0.791 5792		0.771 9589		1.295 4057		0	20	
	10	1050	384	5495	297	0.772 0363	774	.295 2758	1 299	50		
	20	1434	384	5199	296	1137	774	.295 1460	1 298	40		
	30	1817	383	4903	296	1911	774	.295 0162	1 298	30		
	40	2201	384	4607	296	2685	774	.294 8865	1 297	20		
	50	2585	384	4310	297	3459	774	.294 7567	1 298	10		
			384		296		774		1 297			
41	0	0.611 2969		0.791 4014		0.772 4233		1.294 6270		0	19	
	10	3352	383	3717	297	5007	774	.294 4972	1 298	50		
	20	3736	384	3421	296	5781	774	.294 3675	1 297	40		
	30	4120	384	3125	296	6555	775	.294 2378	1 297	30		
	40	4503	383	2828	297	7330	774	.294 1081	1 297	20		
	50	4887	384	2532	296	8104	774	.293 9785	1 296	10		
			383		297		774		1 297			
42	0	0.611 5270		0.791 2235		0.772 8878		1.293 8488		0	18	
	10	5654	384	1939	296	9653	775	.293 7192	1 296	50		
	20	6038	384	1642	297	0.773 0427	774	.293 5896	1 296	40		
	30	6421	383	1346	296	1202	775	.293 4600	1 296	30		
	40	6805	383	1049	296	1976	774	.293 3304	1 296	20		
	50	7188	384	0753	297	2751	775	.293 2008	1 296	10		
			384		297		775		1 295			
43	0	0.611 7572		0.791 0456		0.773 3526		1.293 0713		0	17	
	10	7955	383	0160	296	4301	775	.292 9417	1 296	50		
	20	8339	384	0 790 9863	297	5076	775	.292 8122	1 295	40		
	30	8722	384	9566	296	5850	774	.292 6827	1 295	30		
	40	9106	384	9270	296	6625	775	.292 5532	1 295	20		
	50	9489	383	8973	297	7400	775	.292 4237	1 295	10		
			384		297		776		1 294			
44	0	0.611 9873		0.790 8676		0.773 8176		1.292 2943		0	16	
	10	0 612 0256	383	8380	296	8951	775	.292 1648	1 295	50		
	20	0639	383	8083	297	9726	775	.292 0354	1 294	40		
	30	1023	384	7786	297	0 774 0501	775	.291 9060	1 294	30		
	40	1406	383	7489	296	1276	775	.291 7766	1 294	20		
	50	1789	383	7193	296	2052	776	.291 6473	1 293	10		
			384		297		775		1 294			
45	0	0.612 2173		0.790 6896		0.774 2827		1.291 5179		0	15	
	10	2556	383	6599	297	3603	776	.291 3886	1 293	50		
	20	2939	383	6302	297	4378	775	.291 2592	1 294	40		
	30	3323	384	6005	297	5154	776	.291 1299	1 293	30		
	40	3706	383	5708	297	5930	776	.291 0006	1 293	20		
	50	4089	383	5411	297	6705	775	.290 8714	1 292	10		
			384		296		776		1 293			
46	0	0.612 4473		0.790 5115		0.774 7481		1.290 7421		0	14	
	10	4856	383	4818	297	8257	776	.290 6128	1 293	50		
	20	5239	383	4521	297	9033	776	.290 4836	1 292	40		
	30	5622	383	4224	297	9809	776	.290 3544	1 292	30		
	40	6005	384	3927	297	0.775 0585	776	.290 2252	1 292	20		
	50	6389	383	3630	297	1361	776	.290 0960	1 291	10		
			383		297		776		1 291			
47	0	0.612 6772		0.790 3333		0.775 2137		1.289 9669		0	13	
	10	7155	383	3036	297	2913	776	.289 8377	1 292	50		
	20	7538	383	2739	297	3690	777	.289 7086	1 291	40		
	30	7921	383	2441	298	4466	776	.289 5795	1 291	30		
	40	8304	383	2144	297	5242	776	.289 4504	1 291	20		
	50	8687	383	1847	297	6019	777	.289 3213	1 291	10		
			384		297		776		1 291			
48	0	0.612 9071		0.790 1550		0.775 6795		1.289 1922		0	12	
	10	9454	383	1253	297	7572	777	.289 0632	1 290	50		
	20	9837	383	0956	297	8348	776	.288 9341	1 291	40		
	30	0 613 0220	383	0659	298	9125	777	.288 8051	1 290	30		
	40	0603	383	0361	298	9902	777	.288 6761	1 290	20		
	50	0986	383	0064	297	0.776 0678	776	.288 5471	1 290	10		
			383		297		777		1 289			
49	0	0.613 1369		0.789 9767		0.776 1455		1.288 4182		0	11	
	10	1752	383	9470	297	2232	777	.288 2892	1 290	50		
	20	2135	383	9172	298	3009	777	.288 1603	1 289	40		
	30	2518	383	8875	297	3786	777	.288 0314	1 289	30		
	40	2901	383	8578	297	4563	777	.287 9025	1 289	20		
	50	3284	382	8280	298	5340	778	.287 7736	1 289	10		
					297				1 289			
50	0	0.613 3666		0.789 7983		0.776 6118		1.287 6447		0	10	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

52° 10'

37° 50'

	'	"	Sine	Diff	Cosine	Diff	Tangent	Diff.	Cotangent	Diff.			Proportional Parts
50	0	0.613 3668			0.789 7983		0.776 6118		1.287 6447		0	10	
	10	4049	383		7686	297	6895	777	.287 5158	1.289	50		
	20	4432	383		7388	298	7672	777	.287 3870	1.288	40		
	30	4815	383		7091	297	8449	777	.287 2582	1.288	30		
	40	5198	383		6793	298	9227	778	.287 1294	1.288	20		
	50	5581	383		6496	297	0.777 0004	777	.287 0006	1.288	10		
			383			298		778		1.288			
51	0	0.613 5964			0.789 6198		0.777 0782		1.286 8718		0	9	
	10	6346	382		5901	297	1559	777	.286 7430	1.288	50		
	20	6729	383		5603	298	2337	778	.286 6143	1.287	40		
	30	7112	383		5306	297	3115	778	.286 4856	1.287	30		
	40	7495	383		5008	298	3893	778	.286 3568	1.288	20		
	50	7878	382		4711	297	4670	777	.286 2282	1.286	10		
			382			298		778		1.287			
52	0	0.613 8 60			0.789 4413		0.777 5448		1.286 0995		0	8	
	10	8643	383		4116	297	6226	778	.285 9708	1.287	50		
	20	9026	383		3818	298	7004	778	.285 8422	1.286	40		
	30	9408	382		3520	298	7782	778	.285 7135	1.287	30		
	40	9791	383		3223	297	8560	778	.285 5849	1.286	20		
	50	0.614 0174	383		2925	298	9339	779	.285 4563	1.286	10		
			382			298		778		1.286			
53	0	0.614 0556			0.789 2627		0.778 0117		1.285 3277		0	7	
	10	0939	383		2330	297	0895	778	.285 1992	1.285	50		
	20	1322	383		2032	298	1674	779	.285 0706	1.286	40		
	30	1704	382		1734	298	2452	778	.284 9421	1.285	30		
	40	2087	383		1436	298	3230	778	.284 8136	1.285	20		
	50	2469	382		1139	297	4009	779	.284 6850	1.286	10		
			383			298		779		1.284			
54	0	0.614 2852			0.789 0841		0.778 4788		1.284 5566		0	6	
	10	3235	383		0543	298	5566	778	.284 4281	1.285	50		
	20	3617	382		0245	298	6345	779	.284 2996	1.285	40		
	30	4000	383		0.788 9947	298	7124	779	.284 1712	1.284	30		
	40	4382	382		9649	298	7903	779	.284 0428	1.284	20		
	50	4765	383		9352	297	8681	778	.283 9144	1.284	10		
			382			298		779		1.284			
55	0	0.614 5147			0.788 9054		0.778 9460		1.283 7860		0	5	
	10	5530	382		8756	298	0 779 0239	779	.283 6576	1.284	50		
	20	5912	382		8458	298	1018	779	.283 5292	1.284	40		
	30	6294	382		8160	298	1798	780	.283 4009	1.283	30		
	40	6677	383		7862	298	2577	779	.283 2726	1.283	20		
	50	7059	382		7564	298	3356	779	.283 1443	1.283	10		
			383			298		779		1.283			
56	0	0.614 7442			0.788 7266		0.779 4135		1.283 0160		0	4	
	10	7824	382		6968	298	4915	780	.282 8877	1.283	50		
	20	8206	382		6670	298	5694	779	.282 7594	1.283	40		
	30	8589	383		6372	298	6474	780	.282 6312	1.282	30		
	40	8971	382		6073	299	7253	779	.282 5029	1.283	20		
	50	9353	382		5775	298	8033	780	.282 3747	1.282	10		
			383			298		779		1.282			
57	0	0.614 9736			0.788 5477		0.779 8812		1.282 2465		0	3	
	10	0.615 0118	382		5179	298	9592	780	.282 1183	1.282	50		
	20	0500	382		4881	298	0.780 0372	780	.281 9902	1.281	40		
	30	0883	383		4583	298	1152	780	.281 8620	1.282	30		
	40	1265	382		4284	299	1932	780	.281 7339	1.281	20		
	50	1647	382		3986	298	2712	780	.281 6058	1.281	10		
			382			298		780		1.282			
58	0	0.615 2029			0.788 3688		0.780 3492		1.281 4776		0	2	
	10	2411	382		3390	298	4272	780	.281 3496	1.280	50		
	20	2794	383		3091	299	5052	780	.281 2215	1.281	40		
	30	3176	382		2793	298	5832	780	.281 0934	1.281	30		
	40	3558	382		2495	299	6612	780	.280 9654	1.280	20		
	50	3940	382		2196	298	7392	781	.280 8374	1.280	10		
			382			298		781		1.280			
59	0	0.615 4322			0.788 1898		0.780 8173		1.280 7094		0	1	
	10	4704	382		1600	298	8953	780	.280 5814	1.280	50		
	20	5086	382		1301	299	9734	781	.280 4534	1.280	40		
	30	5469	383		1003	299	0.781 0514	781	.280 3254	1.279	30		
	40	5851	382		0704	299	1295	781	.280 1975	1.279	20		
	50	6233	382		0406	298	2076	780	.280 0695	1.280	10		
			382			298		780		1.279			
60	0	0.615 6615			0.788 0108		0.781 2856		1.279 9416		0	0	
			Cosine	Diff.	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

52° 0'

38° 0'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
0	0	0 615 6615	382	0.788 0108	299	0.781 2856	781	1.279 9416	1 279	0	60	
	10	6997	382	0.787 9809	298	3637	781	.279 8137	1 278	50		
	20	7379	382	9511	299	4418	781	.279 6859	1 278	40		
	30	7761	382	9212	299	5199	781	.279 5580	1 279	30		
	40	8143	382	8913	299	5980	781	.279 4301	1 279	20		
	50	8525	382	8615	298	6761	781	.279 3023	1 278	10		
					299							Sine
1	0	0 615 8907	382	0.787 8316	298	0.781 7542	781	1 279 1745	1 278	0	59	381 382
	10	9289	382	8018	298	8323	781	.279 0467	1 278	50		1 38 1 38 2
	20	9671	382	7719	299	9104	781	.278 9189	1 278	40		2 76 2 76 4
	30	0.616 0053	381	7420	299	9885	781	.278 7911	1 278	30		3 114 3 114 6
	40	0434	382	7122	298	0.782 0667	782	.278 6634	1 277	20		4 152 4 152 8
	50	0816	382	6823	299	1448	781	.278 5356	1 277	10		5 190 5 191 0
					299							6 228 6 229 2
2	0	0 616 1198	382	0.787 6524	298	0.782 2229	782	1.278 4079	1 277	0	58	7 266 7 267 4
	10	1580	382	6226	299	3011	782	.278 2802	1 277	50		8 304 8 305 6
	20	1962	382	5927	299	3793	781	.278 1525	1 277	40		9 342 9 343 8
	30	2344	381	5628	299	4574	782	.278 0248	1 276	30		
	40	2726	382	5329	298	5356	782	.277 8972	1 277	20		Cosine
	50	3107	382	5031	299	6138	781	.277 7695	1 277	10		298 299 300
					299				1 276			1 29 8 29 9 30 0
3	0	0 616 3489	382	0.787 4732	299	0.782 6919	782	1 277 6419	1 276	0	57	2 59 6 59 8 60 0
	10	3871	382	4433	299	7701	782	.277 5143	1 276	50		3 89 4 89 7 90 0
	20	4253	381	4134	299	8483	782	.277 3867	1 276	40		4 119 2 119 6 120 0
	30	4634	382	3835	299	9265	782	.277 2591	1 276	30		5 149 0 149 5 150 0
	40	5016	382	3536	298	0.783 0047	782	.277 1315	1 276	20		6 178 8 179 4 180 0
	50	5398	382	3238	299	0829	782	.277 0040	1 275	10		7 208 6 209 3 210 0
					299				1 275			8 238 4 239 2 240 0
4	0	0 616 5780	381	0.787 2939	299	0.783 1611	782	1.276 8765	1 276	0	56	9 268 2 269 1 270 0
	10	6161	382	2640	299	2393	783	.276 7489	1 275	50		
	20	6543	381	2341	299	3176	783	.276 6214	1 275	40		Tangent
	30	6925	382	2042	299	3958	782	.276 4939	1 275	30		781 782
	40	7306	382	1743	299	4740	783	.276 3665	1 275	20		1 78 1 78 2
	50	7688	381	1444	299	5523	782	.276 2390	1 274	10		2 156 2 156 4
					299				1 274			3 234 3 234 6
5	0	0 616 8069	382	0.787 1145	299	0.783 6305	783	1.276 1116	1 274	0	55	4 312 4 312 8
	10	8451	382	0846	299	7088	783	.275 9842	1 274	50		5 390 5 391 0
	20	8833	382	0547	299	7871	783	.275 8567	1 275	40		6 468 6 469 2
	30	9214	381	0248	299	8653	782	.275 7294	1 273	30		7 546 7 547 4
	40	9596	382	0.786 9948	300	9436	783	.275 6020	1 274	20		8 624 8 625 6
	50	9977	382	9649	299	0.784 0219	783	.275 4746	1 274	10		9 702 9 703 8
					299				1 273			
6	0	0.617 0359	381	0.786 9350	299	0.784 1002	782	1.275 3473	1 274	0	54	783 784 785
	10	0740	382	9051	299	1784	783	.275 2199	1 273	50		1 78 3 78 4 78 5
	20	1122	381	8752	299	2567	783	.275 0926	1 273	40		2 156 6 156 8 157 0
	30	1503	382	8453	300	3350	784	.274 9653	1 273	30		3 234 9 235 2 235 5
	40	1885	381	8153	300	4134	783	.274 8381	1 272	20		4 312 2 313 6 314 0
	50	2266	382	7854	299	4917	783	.274 7108	1 273	10		5 391 5 392 0 392 5
					299				1 273			6 469 8 470 4 471 0
7	0	0.617 2648	381	0.786 7555	299	0 784 5700	783	1.274 5835	1 274	0	53	7 518 1 518 8 519 5
	10	3029	381	7256	300	6483	784	.274 4563	1 272	50		8 626 4 627 2 628 0
	20	3410	382	6956	299	7267	783	.274 3291	1 272	40		9 704 7 705 6 706 5
	30	3792	381	6657	299	8050	783	.274 2019	1 272	30		
	40	4173	382	6358	299	8833	784	.274 0747	1 272	20		Cotangent
	50	4555	381	6058	299	9617	783	.273 9475	1 272	10		1280 1270
					299				1 271			1 128 0 127 0
8	0	0.617 4936	381	0.786 5759	299	0.785 0400	784	1.273 8204	1 272	0	52	2 256 0 254 0
	10	5317	382	5460	300	1184	784	.273 6932	1 271	50		3 384 0 381 0
	20	5699	381	5160	299	1968	784	.273 5661	1 271	40		4 512 0 508 0
	30	6080	382	4861	299	2752	783	.273 4390	1 271	30		5 640 0 635 0
	40	6461	381	4561	300	3535	784	.273 3119	1 271	20		6 768 0 762 0
	50	6842	382	4262	299	4319	784	.273 1848	1 270	10		7 896 0 889 0
					299				1 270			8 1024 0 1016 0
9	0	0.617 7224	381	0.786 3963	300	0.785 5103	784	1.273 0578	1 271	0	51	9 1152 0 1143 0
	10	7605	381	3663	299	5887	784	.272 9307	1 270	50		
	20	7986	381	3364	299	6671	784	.272 8037	1 270	40		
	30	8367	382	3064	299	7455	784	.272 6767	1 270	30		
	40	8749	381	2765	300	8239	785	.272 5497	1 270	20		
	50	9130	381	2465	300	9024	784	.272 4227	1 270	10		
10	0	0.617 9511		0.786 2165		0.785 9808		1.272 2957		0	50	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

51° 50'

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51° 40'

38° 20'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
20	0	0.620 2355		0.784 4157		0.790 6975		1.264 7062		0	40	
	10	2735	380	3856	301	7763	788	.264 5802	1.260	50		
	20	3115	380	3555	301	8551	788	.264 4542	1.260	40		
	30	3496	381	3254	301	9339	788	.264 3282	1.260	30		
	40	3876	380	2954	300	0127	788	.264 2022	1.260	20		
	50	4256	380	2653	301	0915	788	.264 0763	1.259	10		
21	0	0.620 4636		0.784 2352		0.791 1703		1.263 9503		0	39	Sine
	10	5017	381	2051	301	2492	789	.263 8244	1.259	50		379 380 381
	20	5397	380	1750	301	3280	788	.263 6985	1.259	40		1 37 9 38 0 38 1
	30	5777	380	1450	300	4069	789	.263 5726	1.259	30		2 75 8 76 0 76 2
	40	6157	380	1149	301	4857	788	.263 4467	1.259	20		3 114 7 114 0 114 3
	50	6537	380	0848	301	5646	789	.263 3208	1.259	10		4 151 6 152 0 152 4
22	0	0.620 6917		0.784 0547		0.791 6434		1.263 1950		0	38	
	10	7298	381	0246	301	7223	789	.263 0692	1.258	50		
	20	7678	380	0783 9945	301	8012	789	.262 9433	1.258	40		
	30	8058	380	9644	301	8800	788	.262 8175	1.258	30		
	40	8438	380	9343	301	9589	789	.262 6917	1.258	20		
	50	8818	380	9042	301	0378	789	.262 5660	1.257	10		
23	0	0.620 9198		0.783 8741		0.792 1167		1.262 4402		0	37	Cosine
	10	9578	380	8440	301	1956	789	.262 3145	1.257	50		300 301 302
	20	9958	380	8139	301	2745	789	.262 1887	1.257	40		1 30 0 30 1 30 2
	30	0.621 0338	380	7838	301	3534	789	.262 0630	1.257	30		2 60 0 60 2 60 4
	40	0718	380	7537	301	4324	790	.261 9373	1.257	20		3 90 0 90 3 90 6
	50	1098	380	7236	301	5113	789	.261 8117	1.256	10		4 120 0 120 4 120 8
24	0	0.621 1478		0.783 6935		0.792 5902		1.261 6860		0	36	
	10	1858	380	6633	302	6692	790	.261 5603	1.257	50		
	20	2238	380	6332	301	7481	789	.261 4347	1.256	40		
	30	2618	380	6031	301	8271	790	.261 3091	1.256	30		
	40	2997	379	5730	301	9060	789	.261 1835	1.256	20		
	50	3377	380	5429	302	9850	790	.261 0579	1.256	10		
25	0	0.621 3757		0.783 5127		0.793 0640		1.260 9323		0	35	Tangent
	10	4137	380	4826	301	1429	789	.260 8068	1.255	50		788 789
	20	4517	380	4525	301	2219	790	.260 6812	1.256	40		1 78 8 78 9
	30	4897	380	4224	301	3009	790	.260 5557	1.255	30		2 157 6 157 8
	40	5277	379	3922	301	3799	790	.260 4302	1.255	20		3 236 4 236 7
	50	5656	380	3621	301	4589	790	.260 3047	1.255	10		4 315 2 315 6
26	0	0.621 6036		0.783 3320		0.793 5379		1.260 1792		0	34	
	10	6416	380	3018	302	6169	790	.260 0538	1.254	50		
	20	6796	380	2717	301	6960	791	.259 9283	1.254	40		
	30	7175	379	2415	301	7750	790	.259 8029	1.254	30		
	40	7555	380	2114	301	8540	790	.259 6775	1.254	20		
	50	7935	379	1813	302	9330	791	.259 5521	1.254	10		
27	0	0.621 8314		0.783 1511		0.794 0121		1.259 4267		0	33	
	10	8694	380	1210	301	0911	790	.259 3013	1.254	50		
	20	9074	380	0908	302	1702	791	.259 1759	1.254	40		
	30	9453	379	0607	301	2493	791	.259 0506	1.253	30		
	40	9833	380	0305	302	3283	790	.258 9253	1.253	20		
	50	0.622 0213	379	0003	301	4074	791	.258 8000	1.253	10		
28	0	0.622 0592		0.782 9702		0.794 4865		1.258 6747		0	32	Cotangent
	10	0972	380	9400	302	5656	791	.258 5494	1.253	50		1260 1250
	20	1351	379	9099	301	6447	791	.258 4241	1.253	40		1 126 0 125 0
	30	1731	380	8797	302	7238	791	.258 2989	1.252	30		2 252 0 250 0
	40	2111	380	8495	302	8029	791	.258 1736	1.252	20		3 378 0 375 0
	50	2490	379	8194	302	8820	791	.258 0484	1.252	10		4 504 0 500 0
29	0	0.622 2870		0.782 7892		0.794 9611		1.257 9232		0	31	
	10	3249	379	7590	302	0402	791	.257 7980	1.252	50		5 630 0 625 0
	20	3629	380	7289	301	1193	791	.257 6728	1.252	40		6 756 0 750 0
	30	4008	379	6987	302	1985	792	.257 5477	1.251	30		7 882 0 875 0
	40	4387	380	6685	302	2776	791	.257 4225	1.252	20		8 1008 0 1000 0
	50	4767	379	6383	301	3568	792	.257 2974	1.251	10		9 1134 0 1125 0
30	0	0.622 5146		0.782 6082		0.795 4359		1.257 1723		0	30	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

51° 30'

38° 30'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
30	0	0.622 5146		0.782 6082		0.795 4359		1.257 1723		0	30	
	10	5526	380	5780	302	5151	792	.257 0472	1 251	50		
	20	5905	379	5478	302	5942	791	.256 9221	1 251	40		
	30	6285	380	5176	302	6734	792	.256 7971	1 250	30		
	40	6664	379	4874	302	7526	792	.256 6720	1 251	20		
	50	7043	379	4572	302	8318	792	.256 5470	1 250	10		
			380		302		792		1 251			
31	0	0.622 7423		0.782 4270		0.795 9110		1.256 4219		0	29	Sine
	10	7802	379	3968	302	9902	792	.256 2969	1 250	50		378 379 380
	20	8181	379	3667	301		792	.256 1719	1 250	40		1 37 8 37 9 38 0
	30	8561	380	3365	302	0.796 0694	792	.256 0470	1 249	30		2 75 6 75 8 76 0
	40	8940	379	3063	302	2278	792	.255 9220	1 250	20		3 113 4 113 7 114 0
	50	9319	379	2761	302	3070	792	.255 7971	1 249	10		4 151 2 151 6 152 0
			379		302		792		1 250			5 189 0 189 5 190 0
32	0	0.622 9698		0.782 2459		0.796 3862		1.255 6721		0	28	
	10	0.623 0078	380	2157	302	4655	793	.255 5472	1 249	50		6 226 8 227 4 228 0
	20	0457	379	1855	302	5447	792	.255 4223	1 249	40		7 264 6 265 3 266 0
	30	0836	379	1552	303	6240	793	.255 2974	1 249	30		8 302 4 303 2 304 0
	40	1215	379	1250	302	7032	792	.255 1726	1 248	20		9 340 2 341 1 342 0
	50	1594	379	0948	302	7825	793	.255 0477	1 249	10		
			380		302		792		1 248			Cosine
33	0	0.623 1974		0.782 0646		0.796 8617		1.254 9229		0	27	301 302 303
	10	2353	379	0344	302	9410	793	.254 7980	1 249	50		1 30 1 30 2 30 3
	20	2732	379	0042	302	0.797 0203	793	.254 6732	1 248	40		2 60 2 60 4 60 6
	30	3111	379	0.781 9740	303	0995	792	.254 5484	1 248	30		3 90 3 90 6 90 9
	40	3490	379	9437	302	1788	793	.254 4237	1 247	20		4 120 4 120 8 121 2
	50	3869	379	9135	302	2581	793	.254 2989	1 247	10		5 150 5 151 0 151 5
			379		302		793		1 248			6 180 6 181 2 181 8
34	0	0.623 4248		0.781 8833		0.797 3374		1.254 1742		0	26	
	10	4627	379	8531	302	4167	793	.254 0494	1 248	50		7 210 7 211 4 212 1
	20	5006	379	8228	303	4961	794	.253 9247	1 247	40		8 240 8 241 6 242 4
	30	5385	379	7926	302	5754	793	.253 8000	1 247	30		9 270 9 271 8 272 7
	40	5764	379	7624	302	6547	793	.253 6753	1 247	20		
	50	6143	379	7322	302	7340	793	.253 5506	1 247	10		Tangent
			379		303		794		1 246			791 792
35	0	0.623 6522		0.781 7019		0.797 8134		1.253 4260		0	25	
	10	6901	379	6717	302	8927	793	.253 3013	1 247	50		1 79 1 79 2
	20	7280	379	6414	303	9721	794	.253 1767	1 246	40		2 158 2 158 4
	30	7659	379	6112	302	0.798 0514	793	.253 0521	1 246	30		3 237 3 237 6
	40	8038	379	5810	302	1308	794	.252 9275	1 246	20		4 316 4 316 8
	50	8417	379	5507	303	2101	793	.252 8029	1 246	10		5 395 5 396 0
			379		302		794		1 245			6 474 6 475 2
36	0	0.623 8796		0.781 5205		0.798 2895		1.252 6784		0	24	
	10	9175	379	4902	303	3689	794	.252 5538	1 246	50		7 553 7 554 4
	20	9554	379	4600	302	4483	794	.252 4293	1 245	40		8 632 8 633 6
	30	9933	379	4297	303	5277	794	.252 3048	1 245	30		9 711 9 712 8
	40	0.624 0311	379	3995	302	6071	794	.252 1803	1 245	20		
	50	0690	379	3692	302	6865	794	.252 0558	1 245	10		Tangent
			379		302		794		1 245			793 794 795
37	0	0.624 1069		0.781 3390		0.798 7659		1.251 9313		0	23	
	10	1448	379	3087	303	8453	794	.251 8068	1 245	50		1 79 3 79 4 79 5
	20	1827	379	2784	303	9247	794	.251 6824	1 244	40		2 158 6 158 8 159 0
	30	2205	378	2482	302	0.799 0042	795	.251 5579	1 245	30		3 237 9 238 2 238 5
	40	2584	379	2179	303	0836	794	.251 4335	1 244	20		4 317 2 317 6 318 0
	50	2963	379	1876	302	1630	794	.251 3091	1 244	10		5 396 5 397 0 397 5
			379		302		795		1 243			6 475 8 476 4 477 0
38	0	0.624 3342		0.781 1574		0.799 2425		1.251 8488		0	22	
	10	3720	378	1271	303	3219	794	.251 7243	1 244	50		7 555 1 555 8 556 5
	20	4099	379	0968	303	4014	795	.250 6004	1 244	40		8 634 4 635 2 636 0
	30	4478	379	0666	302	4809	795	.250 4759	1 243	30		9 713 7 714 6 715 5
	40	4856	378	0363	303	5603	794	.250 3514	1 243	20		
	50	5235	379	0060	303	6398	795	.250 2269	1 243	10		Cotangent
			379		303		795		1 243			1250 1240
39	0	0.624 5614		0.780 9757		0.799 7193		1.250 4388		0	21	
	10	5992	378	9455	302	7988	795	.250 3143	1 243	50		1 125 0 124 0
	20	6371	379	9152	303	8783	795	.250 1902	1 243	40		2 250 0 248 0
	30	6749	378	8849	303	9578	795	.250 0660	1 242	30		3 375 0 372 0
	40	7128	379	8546	303	0.800 0373	795	.249 9417	1 243	20		4 500 0 496 0
	50	7507	378	8243	303	1168	795	.249 8175	1 242	10		5 625 0 620 0
			379		303		795		1 242			6 750 0 744 0
40	0	0.624 7885		0.780 7940		0.800 1963		1.249 6933		0	20	
												7 875 0 868 0
												8 1000 0 992 0
												9 1125 0 1116 0
		Cosine	Diff.	Sine	Diff.	Cotangent	Diff.	Tangent	Diff.	"	"	Proportional Parts

51° 20'

38° 40'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
40	0	0.624 7885		0.780 7940		0.800 1963		1.249 6933		0	20	
	10	8264	379	7637	303	2759	796	.249 5691	1 242	50		
	20	8642	378	7334	303	3554	795	.249 4449	1 242	40		
	30	9021	379	7031	303	4349	795	.249 3208	1 241	30		
	40	9399	378	6728	303	5145	796	.249 1966	1 242	20		
	50	9778	379	6426	302	5940	795	.249 0725	1 241	10		
			378		303		796		1 241			
41	0	0.625 0156		0.780 6123		0.800 6736		1.248 9484		0	19	
	10	0535	379	5819	304	7532	796	.248 8243	1 241	50		
	20	0913	378	5516	303	8327	795	.248 7002	1 241	40		
	30	1291	378	5213	303	9123	796	.248 5762	1 240	30		
	40	1670	379	4910	303	9919	796	.248 4521	1 241	20		
	50	2048	378	4607	303	0.801 0715	796	.248 3281	1 240	10		
			379		303		796		1 241			
42	0	0.625 2427		0.780 4304		0.801 1511		1.248 2040		0	18	
	10	2805	378	4001	303	2307	796	.248 0800	1 240	50		
	20	3183	378	3698	303	3103	796	.247 9560	1 240	40		
	30	3562	379	3395	303	3899	796	.247 8321	1 239	30		
	40	3940	378	3091	304	4695	796	.247 7081	1 240	20		
	50	4318	378	2788	303	5491	796	.247 5841	1 240	10		
			378		303		797		1 239			
43	0	0.625 4696		0.780 2485		0.801 6288		1.247 4602		0	17	
	10	5075	379	2182	303	7084	796	.247 3363	1 239	50		
	20	5453	378	1878	304	7881	797	.247 2124	1 239	40		
	30	5831	378	1575	303	8677	796	.247 0885	1 239	30		
	40	6209	378	1272	303	9473	796	.246 9646	1 239	20		
	50	6588	379	0969	303	0.802 0270	797	.246 8408	1 238	10		
			378		304		797		1 239			
44	0	0.625 6966		0.780 0665		0.802 1067		1.246 7169		0	16	
	10	7344	378	0362	303	1864	797	.246 5931	1 238	50		
	20	7722	378	0059	303	2661	797	.246 4693	1 238	40		
	30	8100	378	0.779 9755	304	3457	796	.246 3455	1 238	30		
	40	8478	378	9452	303	4254	797	.246 2217	1 238	20		
	50	8857	379	9148	304	5051	797	.246 0979	1 238	10		
			378		303		798		1 237			
45	0	0.625 9235		0.779 8845		0.802 5849		1.245 9742		0	15	
	10	9613	378	8541	304	6646	797	.245 8504	1 238	50		
	20	9991	378	8238	303	7443	797	.245 7267	1 237	40		
	30	0.626 0369	378	7934	304	8240	797	.245 6030	1 237	30		
	40	0747	378	7631	303	9037	797	.245 4793	1 237	20		
	50	1125	378	7327	304	9835	798	.245 3556	1 237	10		
			378		303		797		1 236			
46	0	0.626 1503		0.779 7024		0.803 0632		1.245 2320		0	14	
	10	1881	378	6720	304	1430	798	.245 1083	1 237	50		
	20	2259	378	6417	303	2227	797	.244 9847	1 236	40		
	30	2637	378	6113	304	3025	798	.244 8611	1 236	30		
	40	3015	378	5809	304	3823	798	.244 7375	1 236	20		
	50	3393	378	5506	303	4620	797	.244 6139	1 236	10		
			378		304		798		1 236			
47	0	0.626 3771		0.779 5202		0.803 5418		1.244 4903		0	13	
	10	4149	378	4898	304	6216	798	.244 3667	1 236	50		
	20	4527	378	4595	303	7014	798	.244 2432	1 235	40		
	30	4905	378	4291	304	7812	798	.244 1197	1 235	30		
	40	5282	377	3987	304	8610	798	.243 9961	1 235	20		
	50	5660	378	3683	304	9408	798	.243 8726	1 235	10		
			378		303		798		1 234			
48	0	0.626 6038		0.779 3380		0.804 0206		1.243 7492		0	12	
	10	6416	378	3076	304	1005	799	.243 6257	1 235	50		
	20	6794	378	2772	304	1803	798	.243 5022	1 235	40		
	30	7172	378	2468	304	2601	798	.243 3788	1 234	30		
	40	7549	377	2164	304	3400	799	.243 2554	1 234	20		
	50	7927	378	1860	304	4198	798	.243 1320	1 234	10		
			378		303		799		1 234			
49	0	0.626 8305		0.779 1557		0.804 4997		1.243 0086		0	11	
	10	8683	378	1253	304	5795	798	.242 8852	1 234	50		
	20	9060	377	0949	304	6594	799	.242 7618	1 234	40		
	30	9438	378	0645	304	7393	799	.242 6385	1 234	30		
	40	9816	377	0341	304	8192	799	.242 5151	1 234	20		
	50	0.627 0193	378	0037	304	8991	799	.242 3918	1 233	10		
			378		304		799		1 233			
50	0	0.627 0571		0.778 9733		0.804 9790		1.242 2685		0	10	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

51° 10'

38° 50'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
50	0	0.627 0671		0.778 9733		0.804 9790		1.242 2685		0	10	
	10	0949	378	9429	304	0.805 0589	799	.242 1452	1 233	50		
	20	1326	377	9125	304	1388	799	.242 0219	1 233	40		
	30	1704	378	8821	304	2187	799	.241 8987	1 232	30		
	40	2082	377	8517	304	2986	799	.241 7754	1 232	20		
	50	2459	377	8213	304	3785	799	241 6522	1 232	10		
			378									
51	0	0.627 2837		0.778 7909		0.805 4584		1.241 5290		0	9	Sine
	10	3214	377	7604	305	5384	800	.241 4058	1 232	50		376 377 378
	20	3592	378	7300	304	6183	799	.241 2826	1 232	40		1 37 6 37 7 37 8
	30	3969	377	6996	304	6983	800	.241 1594	1 232	30		2 75 2 75 4 75 6
	40	4347	378	6692	304	7782	799	.241 0362	1 232	20		3 112 8 113 1 113 4
	50	4724	377	6388	304	8582	800	.240 9131	1 231	10		4 150 4 150 8 151 2
			378				800		1 231			5 188 0 188 5 189 0
												6 225 6 226 2 226 8
												7 263 2 263 9 264 6
												8 300 8 301 6 302 4
												9 338 4 339 3 340 2
52	0	0.627 5102		0.778 6084		0.805 9382		1.240 7900		0	8	
	10	5479	377	5779	305	0.806 0181	799	240 6669	1 231	50		
	20	5857	378	5475	304	0981	800	.240 5438	1 231	40		
	30	6234	377	5171	304	1781	800	240 4207	1 231	30		
	40	6612	378	4866	305	2581	800	240 2976	1 231	20		
	50	6989	377	4562	304	3381	800	240 1746	1 230	10		
			377				800		1 231			Cosine
												304 305
53	0	0.627 7366		0.778 4258		0.806 4181		1.240 0515		0	7	
	10	7744	378	3953	305	4981	800	239 9285	1 230	50		1 30 4 30 5
	20	8121	377	3649	304	5781	800	239 8055	1 230	40		2 60 8 61 0
	30	8499	378	3345	304	6582	801	.239 6825	1 230	30		3 91 2 91 5
	40	8876	377	3040	305	7382	800	.239 5595	1 230	20		4 121 6 122 0
	50	9253	377	2736	304	8182	800	.239 4365	1 230	10		5 152 0 152 5
			377				801		1 229			6 182 4 183 0
												7 212 8 213 5
												8 243 2 244 0
												9 273 6 274 5
54	0	0.627 9631		0.778 2431		0.806 8983		1.239 3136		0	6	
	10	0.628 0008	377	2127	304	9783	800	.239 1906	1 230	50		
	20	0385	377	1823	304	0.807 0584	801	.239 0677	1 229	40		
	30	0762	377	1518	305	1384	800	.238 9448	1 229	30		
	40	1140	378	1214	304	2185	801	.238 8219	1 229	20		
	50	1517	377	0909	305	2986	801	.238 6991	1 228	10		
			377									Tangent
												799 800
55	0	0.628 1894		0.778 0604		0.807 3787		1.238 5762		0	5	
	10	2271	378	0300	304	4588	801	238 4533	1 229	50		1 79 9 80 0
	20	2649	377	0.777 9995	305	5389	801	.238 3305	1 228	40		2 159 8 160 0
	30	3026	377	9691	304	6190	801	.238 2077	1 228	30		3 239 7 240 0
	40	3403	377	9386	305	6991	801	.238 0849	1 228	20		4 319 6 320 0
	50	3780	377	9081	304	7792	801	.237 9621	1 228	10		5 399 5 400 0
			377									6 479 4 480 0
												7 559 3 560 0
												8 639 2 640 0
												9 719 1 720 0
56	0	0.628 4157		0.777 8777		0.807 8593		1.237 8393		0	4	
	10	4534	377	8472	305	9394	801	.237 7166	1 227	50		801 802 803
	20	4911	377	8167	305	0.808 0195	801	.237 5938	1 228	40		1 80 1 80 2 80 3
	30	5288	377	7863	304	0997	802	.237 4711	1 227	30		2 160 2 160 4 160 6
	40	5666	378	7558	305	1798	801	.237 3484	1 227	20		3 240 3 240 6 240 9
	50	6043	377	7253	304	2600	802	.237 2257	1 227	10		4 320 4 320 8 321 2
			377				801		1 227			5 400 5 401 0 401 5
												6 480 6 481 2 481 8
												7 560 7 561 4 562 1
												8 640 8 641 6 642 4
												9 720 9 721 8 722 7
57	0	0.628 6420		0.777 6949		0.808 3401		1.237 1030		0	3	
	10	6797	377	6644	305	4203	802	.236 9803	1 227	50		
	20	7174	377	6339	305	5005	802	.236 8577	1 226	40		
	30	7551	377	6034	305	5806	801	.236 7350	1 227	30		
	40	7928	377	5729	305	6608	802	.236 6124	1 226	20		
	50	8305	377	5424	304	7410	802	.236 4898	1 226	10		
			377									Cotangent
												1230 1220
58	0	0.628 8682		0.777 5120		0.808 8212		1.236 3672		0	2	
	10	9059	377	4815	305	9014	802	.236 2446	1 226	50		1 123 0 122 0
	20	9435	376	4510	305	9816	802	.236 1220	1 226	40		2 246 0 244 0
	30	9812	377	4205	305	0.809 0618	802	.235 9995	1 225	30		3 369 0 366 0
	40	0.629 0189	377	3900	305	1421	803	.235 8769	1 226	20		4 492 0 488 0
	50	0566	377	3595	305	2223	802	.235 7544	1 225	10		5 615 0 610 0
												6 738 0 732 0
												7 861 0 854 0
												8 984 0 976 0
												9 1107 0 1098 0
59	0	0.629 0943		0.777 3290		0.809 3025		1.235 6319		0	1	
	10	1320	377	2985	305	3827	802	.235 5094	1 225	50		
	20	1697	377	2680	305	4630	803	.235 3869	1 225	40		
	30	2074	377	2375	305	5432	802	.235 2645	1 224	30		
	40	2450	376	2070	305	6235	803	.235 1420	1 225	20		
	50	2827	377	1765	305	7038	803	.235 0196	1 224	10		
			377				802		1 224			
60	0	0.629 3204		0.777 1460		0.809 7840		1.234 8972		0	0	
												Proportional Parts
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	

51° 0'

39° 0'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff.			Proportional Parts
0	0	0.629 3204		0.777 1460		0.809 7840		1.234 8972		0	60	
	10	3581	377	1155	305	8643	803	234 7747	1 225	50		Sine
	20	3957	376	0849	306	9446	803	.234 6524	1 223	40		376 377
	30	4334	377	0544	305	0.810 0249	803	.234 5300	1 224	30		1 37 6 37 7
	40	4711	377	0239	305	1052	803	.234 4076	1 224	20		2 75 2 75 4
	50	5088	377	0.776 9934	305	1855	803	.234 2853	1 223	10		3 112 8 113 1
			376						1 224			4 150 4 150 8
1	0	0 629 5464		0.776 9629		0.810 2658		1.234 1629		0	59	
	10	5841	377	9323	306	3461	803	.234 0406	1 223	50		5 188 0 188 5
	20	6218	377	9018	305	4264	803	.233 9183	1 223	40		6 225 6 226 2
	30	6594	377	8713	305	5067	803	.233 7960	1 223	30		7 263 2 263 9
	40	6971	377	8408	306	5871	804	.233 6737	1 223	20		8 300 8 301 6
	50	7347	377	8102	305	6674	803	.233 5515	1 222	10		9 338 4 339 3
			376				804		1 223			
2	0	0 629 7724		0.776 7797		0.810 7478		1.233 4292		0	58	
	10	8101	377	7492	305	8281	803	.233 3070	1 222	50		Cosine
	20	8477	376	7186	306	9085	804	.233 1848	1 222	40		305 306 307
	30	8854	377	6881	305	9888	803	.233 0626	1 222	30		1 30 5 30 6 30 7
	40	9230	376	6576	305	0.811 0692	804	.232 9404	1 222	20		2 61 0 61 2 61 4
	50	9607	377	6270	306	1496	804	.232 8182	1 222	10		3 91 5 91 8 92 1
			376				804		1 221			4 122 0 122 1 122 8
3	0	0 629 9983		0 776 5965		0.811 2300		1.232 6961		0	57	
	10	0 630 0360		5659	306	3104	804	.232 5739	1 222	50		5 152 5 153 0 153 5
	20	0736	377	5354	305	3908	804	.232 4518	1 221	40		6 184 0 184 6 184 2
	30	1113	376	5048	306	4712	804	.232 3297	1 221	30		7 213 5 214 2 214 9
	40	1489	376	4743	305	5516	804	.232 2076	1 221	20		8 241 0 244 8 245 6
	50	1866	377	4437	306	6320	804	.232 0855	1 221	10		9 274 5 275 4 276 3
			376				804		1 221			
4	0	0.630 2242		0.776 4132		0.811 7124		1.231 9634		0	56	
	10	2619	377	3826	306	7928	804	.231 8414	1 220	50		Tangent
	20	2995	376	3521	305	8733	805	.231 7193	1 221	40		803 804 805
	30	3371	376	3215	306	9537	804	.231 5973	1 220	30		1 80 3 80 4 80 5
	40	3748	377	2910	305	0 812 0342	805	.231 4753	1 220	20		2 100 0 100 8 101 0
	50	4124	376	2604	306	1146	804	.231 3533	1 220	10		3 210 9 241 2 241 5
			376				805		1 220			4 321 2 321 6 322 0
5	0	0.630 4500		0 776 2298		0.812 1951		1.231 2313		0	55	
	10	4877	377	1993	305	2755	804	.231 1093	1 220	50		5 401 5 402 0 402 5
	20	5253	376	1687	306	3560	805	.230 9874	1 219	40		6 481 8 483 1 483 0
	30	5629	376	1381	305	4365	805	.230 8655	1 219	30		7 562 1 562 8 563 5
	40	6006	377	1076	306	5170	805	.230 7435	1 219	20		8 643 4 643 2 644 0
	50	6382	376	0770	306	5975	805	.230 6216	1 219	10		9 722 7 723 6 724 5
			376				805		1 219			
6	0	0.630 6758		0 776 0464		0 812 6780		1.230 4997		0	54	
	10	7134	376	0158	306	7585	805	.230 3778	1 219	50		806 807
	20	7511	377	0.775 9853	305	8390	805	.230 2560	1 218	40		1 80 6 80 7
	30	7887	376	9547	306	9195	805	.230 1341	1 219	30		2 161 2 161 4
	40	8263	376	9241	306	0 813 0000	805	.230 0123	1 218	20		3 241 8 242 1
	50	8639	376	8935	306	0805	805	.229 8905	1 218	10		4 322 4 322 8
			376				806		1 218			5 403 0 403 5
7	0	0.630 9015		0.775 8629		0 813 1611		1.229 7687		0	53	
	10	9391	376	8323	306	2416	805	.229 6469	1 218	50		Cotangent
	20	9768	377	8017	306	3222	806	.229 5251	1 218	40		1230 1220
	30	0.631 0144		7711	306	4027	805	.229 4033	1 217	30		1 123 0 122 0
	40	0520	376	7406	305	4833	806	.229 2816	1 217	20		2 246 0 244 0
	50	0896	376	7100	306	5638	805	.229 1598	1 218	10		3 369 0 366 0
			376				806		1 217			4 492 0 488 0
8	0	0.631 1272		0.775 6794		0.813 6444		1.229 0381		0	52	
	10	1648	376	6488	306	7250	806	.228 9164	1 217	50		5 615 0 610 0
	20	2024	376	6182	306	8056	806	.228 7947	1 217	40		6 738 0 732 0
	30	2400	376	5876	306	8862	806	.228 6730	1 217	30		7 861 0 851 0
	40	2776	376	5570	306	9668	806	.228 5514	1 216	20		8 984 0 976 0
	50	3152	376	5264	307	0 814 0474	806	.228 4297	1 217	10		9 1107 0 1098 0
			376						1 216			
9	0	0.631 3528		0.775 4957		0.814 1280		1.228 3081		0	51	
	10	3904	376	4651	306	2086	806	.228 1865	1 216	50		1210
	20	4280	376	4345	306	2892	806	.228 0649	1 216	40		1 121 0
	30	4656	376	4039	306	3699	807	.227 9433	1 216	30		2 242 0
	40	5032	376	3733	306	4505	806	.227 8217	1 216	20		3 363 0
	50	5408	376	3427	306	5312	807	.227 7001	1 216	10		4 484 0
			376				806		1 215			5 605 0
10	0	0.631 5784		0.775 3121		0.814 6118		1.227 5786		0	50	
												6 726 0
												7 847 0
												8 968 0
												9 1089 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

50° 50'

39° 10'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff.			Proportional Parts
10	0	0.631 5784		0.775 3121		0.814 6118		1.227 5786		0	50	
	10	6159	375	2814	307	6925	807	227 4570	1216	50		Sine
	20	6535	376	2508	306	7731	806	.227 3355	1215	40		375 376
	30	6911	376	2202	306	8538	807	.227 2140	1215	30		1 37 5 37 6
	40	7287	376	1896	306	9345	807	.227 0925	1215	20		2 75 0 75 2
	50	7663	376	1589	307	0.815 0151	806	.226 9711	1214	10		3 112 5 112 8
			376		306		807		1215			4 150 0 150 4
11	0	0.631 8039		0.775 1283		0.815 0958		1.226 8496		0	49	
	10	8414	375	0977	306	1765	807	.226 7282	1214	50		5 187 5 188 0
	20	8790	376	0670	307	2572	807	.226 6067	1215	40		6 225 0 225 6
	30	9166	376	0364	306	3379	807	.226 4853	1214	30		7 262 5 263 2
	40	9542	375	0058	306	4187	808	.226 3639	1214	20		8 300 0 300 8
	50	9917	376	0.774 9751	307	4994	807	.226 2425	1214	10		9 337 5 338 4
			376		306							
12	0	0.632 0293		0.774 9445		0.815 5801		1.226 1211		0	48	
	10	0669	376	9138	307	6608	807	.225 9998	1213	50		Cosine
	20	1044	375	8832	306	7416	808	.225 8784	1214	40		306 307 308
	30	1420	376	8526	306	8223	807	.225 7571	1213	30		1 30 6 30 7 30 8
	40	1796	376	8219	307	9031	808	.225 6358	1213	20		2 61 2 61 4 61 6
	50	2171	375	7913	306	9838	807	.225 5145	1213	10		3 91 8 92 1 92 4
			376		307		808		1213			4 122 4 122 8 123 2
13	0	0.632 2647		0.774 7606		0.816 0646		1.225 3932		0	47	
	10	2923	376	7300	306	1454	808	.225 2719	1213	50		5 153 0 153 5 154 0
	20	3298	375	6993	307	2261	807	.225 1507	1212	40		6 183 6 184 2 184 8
	30	3674	376	6686	307	3069	808	.225 0294	1213	30		7 214 2 214 9 215 6
	40	4049	375	6380	306	3877	808	.224 9082	1212	20		8 244 8 245 6 246 4
	50	4425	376	6073	307	4685	808	.224 7870	1212	10		9 275 4 276 3 277 2
			375		306				1212			Tangent
14	0	0.632 4800		0.774 5767		0.816 5493		1.224 6658		0	46	
	10	5176	376	5460	307	6301	808	.224 5446	1212	50		806 807 808
	20	5551	375	5153	307	7109	808	.224 4234	1212	40		1 80 6 80 7 80 8
	30	5927	376	4847	306	7918	809	.224 3023	1211	30		2 161 2 161 4 161 6
	40	6302	376	4540	307	8726	808	.224 1811	1212	20		3 241 8 242 1 242 4
	50	6678	375	4233	307	9534	808	.224 0600	1211	10		4 322 4 322 8 323 2
			376		307		809		1211			5 403 0 403 5 404 0
15	0	0.632 7063		0.774 3926		0.817 0343		1.223 9389		0	45	
	10	7429	376	3620	306	1151	808	.223 8178	1211	50		6 483 6 484 2 484 8
	20	7804	375	3313	307	1960	809	.223 6967	1211	40		7 564 2 564 9 565 6
	30	8180	376	3006	307	2768	808	.223 5756	1210	30		8 644 8 645 6 646 4
	40	8555	375	2699	307	3577	809	.223 4546	1211	20		9 725 4 726 3 727 2
	50	8930	376	2392	306	4386	809	.223 3335	1210	10		809 810 811
			376		306				1210			1 80 9 81 0 81 1
16	0	0.632 9306		0.774 2086		0.817 5195		1.223 2125		0	44	
	10	9681	375	1779	307	6003	808	.223 0915	1210	50		2 161 8 162 0 162 2
	20	0.633 0056	376	1472	307	6812	809	.222 9705	1210	40		3 242 7 243 0 243 3
	30	0432	376	1165	307	7621	809	.222 8495	1210	30		4 323 6 324 0 324 4
	40	0807	375	0858	307	8430	809	.222 7285	1209	20		5 404 5 405 0 405 5
	50	1182	375	0551	307	9240	810	.222 6076	1209	10		6 485 4 486 0 486 6
			375		307		809		1210			7 566 3 567 0 567 7
17	0	0.633 1557		0.774 0244		0.818 0049		1.222 4868		0	43	
	10	1933	376	0.773 9937	307	0858	809	.222 3657	1209	50		8 647 2 648 0 648 8
	20	2308	375	9630	307	1667	810	.222 2448	1209	40		9 728 1 729 0 729 9
	30	2683	375	9323	307	2477	809	.222 1239	1209	30		Cotangent
	40	3058	376	9016	307	3286	810	.222 0030	1209	20		1220 1210
	50	3434	376	8709	307	4096	809	.221 8821	1208	10		1 122 0 121 0
			375		307				1208			2 244 0 242 0
18	0	0.633 3809		0.773 8402		0.818 4905		1.221 7613		0	42	
	10	4184	375	8095	307	5715	810	.221 6404	1209	50		3 366 0 363 0
	20	4559	375	7788	307	6524	809	.221 5196	1208	40		4 488 0 484 0
	30	4934	375	7481	307	7334	810	.221 3988	1208	30		5 610 0 605 0
	40	5309	375	7174	307	8144	810	.221 2780	1208	20		6 732 0 726 0
	50	5684	375	6867	308	8954	810	.221 1572	1208	10		7 854 0 847 0
			375		308				1207			8 976 0 968 0
19	0	0.633 6059		0.773 6559		0.818 9764		1.221 0364		0	41	
	10	6435	376	6252	307	0.819 0574	810	.220 9157	1207	50		1200
	20	6810	375	5945	307	1384	810	.220 7949	1208	40		1 120 0
	30	7185	375	5638	308	2194	810	.220 6742	1207	30		2 240 0
	40	7560	375	5330	307	3004	811	.220 5535	1207	20		3 360 0
	50	7935	375	5023	307	3815	810	.220 4328	1207	10		4 480 0
			375		307				1207			5 600 0
20	0	0.633 8310		0.773 4716		0.819 4625		1.220 3121		0	40	
												6 720 0
												7 840 0
												8 960 0
												9 1080 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff.	"	"	Proportional Parts

50° 40'

39° 20'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
20	0	0.633 8310		0.773 4716		0.819 4625		1 220 3121		0	40	
	10	8685	375	4409	307	5435	810	220 1914	1 207	50		Sine
	20	9060	375	4101	308	6246	811	220 0708	1 206	40		374 375
	30	9435	375	3794	307	7056	810	219 9501	1 207	30		1 37 4 37 5
	40	9810	375	3487	307	7867	811	219 8295	1 206	20		2 74 8 75 0
	50	0.634 0184	374	3179	308	8678	811	219 7089	1 206	10		3 112 2 112 5
			375		307		810		1 206			4 149 6 150 0
21	0	0.634 0559		0.773 2872		0.819 9488		1.219 5883		0	39	
	10	0934	375	2564	308	0 820 0299	811	219 4677	1 206	50		5 187 0 187 5
	20	1309	375	2257	307		811	219 3471	1 206	40		6 224 4 225 0
	30	1684	375	1950	307		811	219 2266	1 205	30		7 261 8 262 5
	40	2059	375	1642	308		811	219 1060	1 206	20		8 299 2 300 0
	50	2434	374	1335	307		811	218 9855	1 205	10		9 336 6 337 5
			375		308				1 205			
22	0	0 634 2808		0.773 1027		0.820 4354		1 218 8650		0	38	
	10		375	0720	307		811	218 7445	1 205	50		Cosine
	20		375	0412	308		812	218 6240	1 205	40		307 308 309
	30		375	0105	307		811	218 5035	1 205	30		1 30 7 30 8 30 9
	40		375	0 772 9797	308		811	218 3831	1 204	20		2 61 4 61 6 61 8
	50		374	9489	308		812	218 2626	1 205	10		3 92 1 92 4 92 7
			375		307		811		1 204			4 122 8 123 2 123 6
23	0	0 634 5057		0 772 9182		0.820 9222		1 218 1422		0	37	
	10		375	8874	308	0 821 0034	812	218 0218	1 204	50		5 153 5 154 0 154 5
	20		374	8566	308		811	217 9014	1 204	40		6 181 2 184 8 185 4
	30		375	8259	307		812	217 7810	1 204	30		7 214 9 215 6 216 3
	40		375	6556	308		812	217 6606	1 204	20		8 245 6 246 4 247 2
	50		374	6930	308		812	217 5403	1 203	10		9 276 3 277 2 278 1
			375		307		812		1 204			
24	0	0 634 7305		0.772 7336		0.821 4093		1 217 4199		0	36	
	10		375	7028	308		812	217 2996	1 203	50		Tangent
	20		374	6720	308		812	217 1793	1 203	40		810 811 812
	30		375	6412	308		812	217 0590	1 203	30		1 81 0 81 1 81 2
	40		375	6105	307		812	216 9387	1 203	20		2 162 0 162 2 162 4
	50		374	5797	308		812	216 8184	1 203	10		3 243 0 243 3 243 6
			375		308		812		1 202			4 324 0 324 4 324 8
25	0	0.634 9553		0.772 5489		0.821 8965		1 216 6982		0	35	
	10		374	5181	308	0 822 9778	813	216 5779	1 203	50		5 405 0 405 5 406 0
	20	0 635 0302	375	4873	308		812	216 4577	1 202	40		6 486 0 486 6 487 2
	30		374	4565	307		812	216 3375	1 202	30		7 567 0 567 7 568 4
	40		374	4258	308		813	216 2173	1 202	20		8 648 0 648 8 649 6
	50		374	3950	308		812	216 0971	1 202	10		9 729 0 729 9 730 8
			375		308		812		1 202			
26	0	0.635 1800		0.772 3642		0 822 3840		1.215 9769		0	34	
	10		374	3334	308		813	215 8568	1 201	50		813 814 815
	20		375	3026	308		813	215 7366	1 202	40		1 81 3 81 4 81 5
	30		374	2718	308		813	215 6165	1 201	30		2 162 6 162 8 163 0
	40		374	2410	308		813	215 4964	1 201	20		3 243 9 244 2 244 5
	50		375	2102	308		813	215 3763	1 201	10		4 325 2 325 6 326 0
			374		308		813		1 201			5 406 5 407 0 407 5
27	0	0 635 4046		0.772 1794		0 822 8718		1.215 2562		0	33	
	10		374	1486	308	0 823 9531	813	215 1361	1 201	50		Cotangent
	20		375	1178	309		813	215 0160	1 201	40		1210 1200
	30		374	0869	308		813	214 8960	1 200	30		1 121 0 120 0
	40		375	0561	308		814	214 7760	1 200	20		2 242 0 240 0
	50		374	0253	308		813	214 6559	1 201	10		3 363 0 360 0
			375		308		813		1 200			4 484 0 480 0
28	0	0.635 6292		0.771 9945		0.823 3597		1.214 5359		0	32	
	10		374	9637	308		814	214 4160	1 199	50		5 605 0 600 0
	20		375	9329	308		814	214 2960	1 200	40		6 726 0 720 0
	30		374	9021	309		813	214 1760	1 200	30		7 847 0 840 0
	40		374	8712	309		814	214 0561	1 199	20		8 968 0 960 0
	50		374	8404	308		814	213 9361	1 200	10		9 1089 0 1080 0
			375		308		813		1 199			1190
29	0	0.635 8537		0.771 8096		0.823 8479		1.213 8162		0	31	
	10		375	7788	308	0 824 0107	814	213 6963	1 199	50		1 119 0
	20		374	7479	309		814	213 5764	1 199	40		2 238 0
	30		374	7171	308		814	213 4565	1 199	30		3 357 0
	40	0.636 0034	374	6863	309		814	213 3367	1 198	20		4 476 0
	50	0408	374	6554	309		815	213 2168	1 199	10		5 595 0
			375		308		814		1 198			6 714 0
30	0	0.636 0782		0.771 6246		0.824 3364		1.213 0970		0	30	
									1 198			7 833 0
												8 952 0
												9 1071 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff			Proportional Parts

50° 30'

39° 30'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff.			Proportional Parts
30	0	0.636 0782		0.771 6246		0.824 3384		1.213 0970		0	30	
	10	1156	374	5937	309	4178	814	.212 9772	1 198	50		
	20	1530	374	5629	308	4993	815	.212 8574	1 198	40		
	30	1904	374	5321	308	5807	814	.212 7376	1 198	30		
	40	2278	374	5012	309	6621	814	.212 6178	1 198	20		
	50	2652	374	4704	308	7436	815	.212 4980	1 198	10		
			374		309		815		1 197			
31	0	0.636 3026		0.771 4395		0.824 8251		1.212 3783		0	29	
	10	3400	374	4087	308	9065	814	.212 2586	1 197	50		
	20	3774	374	3778	309	9880	815	.212 1388	1 198	40		
	30	4148	374	3470	308	0.825 0695	815	.212 0191	1 197	30		
	40	4522	374	3161	309	1510	815	.211 8994	1 197	20		
	50	4896	374	2853	308	2325	815	.211 7798	1 196	10		
			374		309				1 197			
32	0	0.636 5270		0.771 2544		0.825 3140		1.211 6601		0	28	
	10	5644	374	2235	309	3955	815	.211 5404	1 197	50		
	20	6018	374	1927	308	4770	815	.211 4208	1 196	40		
	30	6392	374	1618	309	5585	815	.211 3012	1 196	30		
	40	6766	374	1309	308	6400	815	.211 1816	1 196	20		
	50	7140	373	1001	309	7216	816	.211 0620	1 196	10		
							815		1 196			
33	0	0.636 7513		0.771 0692		0.825 8031		1.210 9424		0	27	
	10	7887	374	0383	309	8847	816	.210 8228	1 196	50		
	20	8261	374	0075	308	9662	815	.210 7033	1 195	40		
	30	8635	374	0.770 9766	309	0.826 0478	816	.210 5837	1 196	30		
	40	9009	374	9457	309	1293	815	.210 4642	1 195	20		
	50	9382	373	9148	308	2109	816	.210 3447	1 195	10		
			374				816		1 195			
34	0	0.636 975		0.770 8840		0.826 2925		1.210 2252		0	26	
	10	0.637 0130	374	8531	309	3741	816	.210 1057	1 195	50		
	20	0504	374	8222	309	4557	816	.209 9863	1 194	40		
	30	0877	373	7913	309	5373	816	.209 8668	1 195	30		
	40	1251	374	7604	309	6189	816	.209 7474	1 194	20		
	50	1625	374	7295	309	7005	816	.209 6279	1 195	10		
			373						1 194			
35	0	0.637 1998		0.770 6986		0.826 7821		1.209 5085		0	25	
	10	2372	374	6677	309	8637	816	.209 3891	1 194	50		
	20	2746	374	6368	309	9454	817	.209 2697	1 194	40		
	30	3119	373	6059	309	0.827 0270	816	.209 1504	1 193	30		
	40	3493	374	5750	309	1086	816	.209 0310	1 194	20		
	50	3866	373	5441	309	1903	817	.208 9117	1 193	10		
			374				816		1 193			
36	0	0.637 4240		0.770 5132		0.827 2719		1.208 7924		0	24	
	10	4613	373	4823	309	3536	817	.208 6730	1 194	50		
	20	4987	374	4514	309	4353	817	.208 5537	1 193	40		
	30	5360	373	4205	309	5170	817	.208 4344	1 193	30		
	40	5734	374	3896	309	5986	816	.208 3152	1 192	20		
	50	6107	373	3587	309	6803	817	.208 1959	1 193	10		
			374						1 192			
37	0	0.637 6481		0.770 3278		0.827 7620		1.208 0767		0	23	
	10	6854	373	2969	309	8437	817	.207 9574	1 193	50		
	20	7228	374	2660	310	9254	817	.207 8382	1 192	40		
	30	7601	373	2350	310	0.828 0072	818	.207 7190	1 192	30		
	40	7975	374	2041	309	0889	817	.207 5998	1 192	20		
	50	8348	373	1732	309	1706	817	.207 4807	1 191	10		
									1 192			
38	0	0.637 8721		0.770 1423		0.828 2523		1.207 3615		0	22	
	10	9095	374	1113	310	3341	818	.207 2424	1 191	50		
	20	9468	373	0804	309	4158	817	.207 1232	1 192	40		
	30	9842	374	0495	309	4976	818	.207 0041	1 191	30		
	40	0.638 0215	373	0186	310	5794	818	.206 8850	1 191	20		
	50	0588	373	0.769 9876	309	6611	818	.206 7659	1 191	10		
									1 191			
39	0	0.638 0961		0.769 9567		0.828 7429		1.206 6468		0	21	
	10	1335	374	9258	309	8247	818	.206 5278	1 190	50		
	20	1708	373	8948	310	9065	818	.206 4087	1 191	40		
	30	2081	373	8639	310	9883	818	.206 2897	1 190	30		
	40	2454	374	8329	309	0.829 0701	818	.206 1707	1 190	20		
	50	2828	373	8020	310	1519	818	.206 0517	1 190	10		
									1 190			
40	0	0.638 3201		0.769 7710		0.829 2337		1.205 9327		0	20	
		Cosine	Diff	Sine	Diff.	Cotangent	Diff	Tangent	Diff.	"	'	Proportional Parts

50° 20'

39° 40'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
40	0	0.638 3201		0.769 7710		0.829 2337		1.205 9327		0	20	
	10	3574	373	7401	309	3155	818	.205 8137	1190	50		
	20	3947	373	7091	310	3973	818	.205 6947	1190	40		
	30	4320	373	6782	309	4792	819	.205 5758	1189	30		
	40	4694	374	6472	310	5610	818	.205 4568	1190	20		
	50	5067	373	6163	309	6429	819	.205 3379	1189	10		
			373		310		818		1189			
41	0	0.638 5440		0.769 5853		0.829 7247		1.205 2190		0	19	
	10	5813	373	5544	309	8066	819	.205 1001	1189	50		
	20	6186	373	5234	310	8885	819	.204 9812	1189	40		
	30	6559	373	4925	309	9703	818	.204 8623	1189	30		
	40	6932	373	4615	310	0.830 0522	819	.204 7435	1188	20		
	50	7305	373	4305	309	1341	819	.204 6246	1189	10		
			373		310				1188			
42	0	0.638 7678		0.769 3996		0.830 2160		1.204 5058		0	18	
	10	8051	373	3686	310	2979	819	.204 3870	1188	50		
	20	8424	373	3376	310	3798	819	.204 2682	1188	40		
	30	8797	373	3066	309	4617	819	.204 1494	1187	30		
	40	9170	373	2757	309	5436	820	.204 0307	1188	20		
	50	9543	373	2447	310	6256	819	.203 9119	1187	10		
			373		310				1187			
43	0	0.638 9916		0.769 2137		0.830 7075		1.203 7932		0	17	
	10	0.639 0289	373	1827	310	7894	819	.203 6744	1188	50		
	20	0662	373	1518	309	8714	820	.203 5557	1187	40		
	30	1035	373	1208	310	9533	819	.203 4370	1187	30		
	40	1408	373	0898	310	0.831 0353	820	.203 3183	1187	20		
	50	1780	372	0588	310	1173	819	.203 1996	1187	10		
			373		310				1186			
44	0	0.639 2153		0.769 0278		0.831 1992		1.203 0810		0	16	
	10	2526	373	0.768 9968	310	2812	820	.202 9623	1187	50		
	20	2899	373	9658	310	3632	820	.202 8437	1186	40		
	30	3272	373	9348	310	4452	820	.202 7251	1186	30		
	40	3644	372	9038	310	5272	820	.202 6065	1186	20		
	50	4017	373	8728	310	6092	820	.202 4879	1186	10		
			373		310				1186			
45	0	0.639 4390		0.768 8418		0.831 6912		1.202 3693		0	15	
	10	4763	373	8108	310	7732	820	.202 2507	1186	50		
	20	5135	372	7798	310	8553	821	.202 1322	1185	40		
	30	5508	373	7488	310	9373	820	.202 0137	1185	30		
	40	5881	373	7178	310	0.832 0193	820	.201 8951	1186	20		
	50	6254	372	6868	310	1014	821	.201 7766	1185	10		
			372		310				1185			
46	0	0.639 6626		0.768 6558		0.832 1834		1.201 6581		0	14	
	10	6999	373	6248	310	2655	821	.201 5397	1184	50		
	20	7371	372	5938	310	3476	821	.201 4212	1185	40		
	30	7744	373	5628	310	4296	821	.201 3027	1185	30		
	40	8117	373	5317	311	5117	821	.201 1843	1184	20		
	50	8489	372	5007	310	5938	821	.201 0659	1184	10		
			373		310				1184			
47	0	0.639 8882		0.768 4697		0.832 6759		1.200 9475		0	13	
	10	9234	372	4387	310	7580	821	.200 8291	1184	50		
	20	9607	373	4076	311	8401	821	.200 7107	1184	40		
	30	9980	373	3766	310	9222	821	.200 5923	1184	30		
	40	0.640 0352	372	3456	310	0.833 0043	821	.200 4740	1183	20		
	50	0725	373	3146	310	0865	822	.200 3556	1184	10		
			372		311				1183			
48	0	0.640 1097		0.768 2835		0.833 1686		1.200 2373		0	12	
	10	1469	372	2525	310	2507	821	.200 1190	1183	50		
	20	1842	373	2215	310	3329	822	.200 0007	1183	40		
	30	2214	372	1904	311	4150	821	.199 8824	1183	30		
	40	2587	373	1594	310	4972	822	.199 7641	1183	20		
	50	2959	372	1283	311	5794	822	.199 6458	1183	10		
			373		310				1182			
49	0	0.640 3332		0.768 0973		0.833 6615		1.199 5276		0	11	
	10	3704	372	0662	311	7437	822	.199 4094	1182	50		
	20	4076	372	0352	310	8259	822	.199 2911	1183	40		
	30	4449	373	0041	311	9081	822	.199 1729	1182	30		
	40	4821	372	0.767 9731	310	9903	822	.199 0547	1182	20		
	50	5193	373	9420	311	0.834 0725	822	.198 9366	1181	10		
			373		310				1182			
50	0	0.640 5566		0.767 9110		0.834 1547		1.198 8184		0	10	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff			Proportional Parts

50° 10'

39° 50'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff.			Proportional Parts
50	0	0.640 5566		0.767 9110		0.834 1547		1.198 8184		0	10	
	10	5938	372	8799	311	2369	822	.198 7003	1 181	50		
	20	6310	372	8489	310	3191	822	.198 5821	1 182	40		
	30	6682	372	8178	311	4014	823	.198 4640	1 181	30		
	40	7055	373	7868	310	4836	822	.198 3459	1 181	20		
	50	7427	372	7557	311	5659	823	.198 2278	1 181	10		
			372		311		822		1 181			
51	0	0.640 7799		0.767 7246		0.834 6481		1.198 1097		0	9	Sine
	10	8171	372	6936	310	7304	823	.197 9916	1 181	50		371 372 373
	20	8543	373	6625	311	8126	822	.197 8736	1 180	40		1 37 1 37 2 37 3
	30	8916	373	6314	311	8949	823	.197 7555	1 181	30		2 74 2 74 4 74 6
	40	9288	372	6004	310	9772	823	.197 6375	1 180	20		3 111 3 111 6 111 9
	50	9660	372	5693	311		823	.197 5195	1 180	10		4 148 4 148 8 149 2
			372		311	0.835 0595	823		1 180			5 185 5 186 0 186 5
52	0	0.641 0032		0.767 5382		0.835 1418		1.197 4015		0	8	6 222 6 223 2 223 8
	10	0404	372	5071	311	2241	823	.197 2835	1 180	50		7 259 7 260 4 261 1
	20	0776	372	4760	311	3064	823	.197 1655	1 180	40		8 296 8 297 6 298 4
	30	1148	372	4450	311	3887	823	.197 0476	1 179	30		9 333 9 334 8 335 7
	40	1520	372	4139	311	4710	823	.196 9296	1 180	20		
	50	1892	372	3828	311	5533	824	.196 8117	1 179	10		Cosine
			372		311				1 179			310 311 312
53	0	0.641 2264		0.767 3517		0.835 6357		1.196 6938		0	7	1 31 0 31 1 31 2
	10	2636	372	3206	311	7180	823	.196 5759	1 179	50		2 62 0 62 2 62 4
	20	3008	372	2895	311	8003	823	.196 4580	1 179	40		3 93 0 93 3 93 6
	30	3380	372	2584	311	8827	824	.196 3401	1 179	30		4 124 0 124 4 124 8
	40	3752	372	2273	311	9650	823	.196 2223	1 178	20		5 155 0 155 5 156 0
	50	4124	372	1962	310	0 836 0474	824	.196 1044	1 179	10		6 186 0 186 6 187 2
			372						1 178			7 217 0 217 7 218 4
54	0	0 641 4496		0.767 1652		0.836 1298		1.195 9866		0	6	8 248 0 248 8 249 6
	10	4868	372	1341	311	2122	824	.195 8688	1 178	50		9 279 0 279 9 280 8
	20	5240	372	1030	311	2945	823	.195 7510	1 178	40		
	30	5612	372	0718	312	3769	824	.195 6332	1 178	30		Tangent
	40	5984	372	0407	311	4593	824	.195 5154	1 178	20		822 823
	50	6356	372	0096	311	5417	825	.195 3976	1 177	10		1 82 2 82 3
			371		311				1 177			2 164 4 164 6
55	0	0 641 6728		0.766 9785		0.836 6242		1.195 2799		0	5	3 246 6 246 9
	10	7099	372	9474	311	7066	824	.195 1621	1 178	50		4 328 8 329 2
	20	7471	372	9163	311	7890	824	.195 0444	1 177	40		5 411 0 411 5
	30	7843	372	8852	311	8714	825	.194 9267	1 177	30		6 493 2 493 8
	40	8215	372	8541	311	9539	824	.194 8090	1 177	20		7 575 4 576 1
	50	8587	371	8230	312	0 837 0363	825	.194 6913	1 177	10		8 657 6 658 4
									1 177			9 739 8 740 7
56	0	0.641 8958		0.766 7918		0.837 1188		1.194 5736		0	4	824 825 826
	10	9330	372	7607	311	2012	824	.194 4560	1 176	50		1 82 4 82 5 82 6
	20	9702	372	7296	311	2837	825	.194 3383	1 177	40		2 164 8 165 0 165 2
	30	0 642 0074	371	6985	312	3662	824	.194 2207	1 176	30		3 247 2 247 5 247 8
	40	0445	372	6673	311	4486	825	.194 1031	1 176	20		4 329 6 330 0 330 4
	50	0817	372	6362	311	5311	825	.193 9855	1 176	10		5 412 0 412 5 413 0
			372		311				1 176			6 494 4 495 0 495 6
57	0	0.642 1189		0.766 6051		0.837 6136		1.193 8679		0	3	7 576 8 577 5 578 2
	10	1560	371	5740	311	6961	825	.193 7503	1 176	50		8 659 2 660 0 660 8
	20	1932	372	5428	312	7786	825	.193 6327	1 176	40		9 741 6 742 5 743 4
	30	2304	372	5117	311	8611	825	.193 5152	1 175	30		
	40	2675	371	4806	311	9437	826	.193 3977	1 175	20		Cotangent
	50	3047	372	4494	312	0 838 0262	825	.193 2801	1 176	10		1180 1170
			371		311				1 175			1 118 0 117 0
58	0	0.642 3418		0.766 4183		0.838 1087		1.193 1626		0	2	2 236 0 234 0
	10	3790	372	3871	312	1913	826	.193 0451	1 175	50		3 351 0 351 0
	20	4161	371	3560	312	2738	826	.192 9277	1 174	40		4 472 0 468 0
	30	4533	372	3248	311	3564	825	.192 8102	1 175	30		5 590 0 585 0
	40	4905	371	2937	312	4389	826	.192 6927	1 174	20		6 708 0 702 0
	50	5276	371	2625	311	5215	826	.192 5753	1 174	10		7 826 0 819 0
			371		311				1 174			8 944 0 936 0
59	0	0.642 5647		0.766 2314		0.838 6041		1.192 4579		0	1	9 1062 0 1053 0
	10	6019	372	2002	312	6866	825	.192 3405	1 174	50		
	20	6390	371	1691	311	7692	826	.192 2231	1 174	40		
	30	6762	372	1379	311	8518	826	.192 1057	1 174	30		
	40	7133	371	1068	312	9344	826	.191 9883	1 174	20		
	50	7505	372	0756	312	0 839 0170	826	.191 8709	1 173	10		
			371		312				1 173			
60	0	0.642 7876		0.766 0444		0.839 0996		1.191 7536		0	0	
		Cosine	Diff	Sine	Diff	Cotangent	Diff.	Tangent	Diff.	"	"	Proportional Parts

50° 0'

40° 0'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
0	0	0.642 7876		0.766 0444		0.839 0996		1.191 7536		0	60	
	10	8247	371	0133	311	1823	827	.191 6363	1 173	50		
	20	8619	372	0765 9821	312	2649	826	.191 5189	1 174	40		
	30	8990	371	9509	312	3475	826	.191 4016	1 173	30		
	40	9362	372	9198	311	4302	827	.191 2843	1 173	20		
	50	9733	371	8886	312	5128	826	.191 1671	1 172	10		
			371		312		827		1 173			
1	0	0.643 0104		0.765 8574		0.839 5955		1.191 0498		0	59	
	10	0475	371	8263	311	6781	826	.190 9326	1 172	50		
	20	0847	372	7951	312	7608	827	.190 8153	1 173	40		
	30	1218	371	7639	312	8435	827	.190 6981	1 172	30		
	40	1589	371	7327	312	9261	826	.190 5809	1 172	20		
	50	1960	372	7015	311	0.840 0088	827	.190 4637	1 172	10		
			371		312		827		1 172			
2	0	0.643 2332		0.765 6704		0.840 0915		1.190 3465		0	58	
	10	2703	371	6392	312	1742	827	.190 2293	1 172	50		
	20	3074	371	6080	312	2569	827	.190 1122	1 171	40		
	30	3445	371	5768	312	3396	827	.189 9950	1 171	30		
	40	3816	372	5456	312	4224	828	.189 8779	1 171	20		
	50	4188	371	5144	312	5051	827	.189 7608	1 171	10		
			371		312		827		1 171			
3	0	0.643 4559		0.765 4832		0.840 5878		1.189 6437		0	57	
	10	4930	371	4520	312	6706	828	.189 5266	1 171	50		
	20	5301	371	4208	312	7533	827	.189 4095	1 171	40		
	30	5672	371	3896	312	8361	828	.189 2925	1 170	30		
	40	6043	371	3584	312	9188	827	.189 1754	1 171	20		
	50	6414	371	3272	312	0.841 0016	828	.189 0584	1 170	10		
			371		312		828		1 170			
4	0	0.643 6785		0.765 2960		0.841 0844		1.188 9414		0	56	
	10	7156	371	2648	312	1671	827	.188 8244	1 170	50		
	20	7527	371	2336	312	2499	828	.188 7074	1 170	40		
	30	7898	371	2024	312	3327	828	.188 5904	1 170	30		
	40	8269	371	1712	312	4155	828	.188 4734	1 170	20		
	50	8640	371	1400	313	4983	829	.188 3565	1 169	10		
			371		313		829		1 170			
5	0	0.643 9011		0.765 1087		0.841 5812		1.188 2395		0	55	
	10	9382	371	0775	312	6640	828	.188 1226	1 169	50		
	20	9753	371	0463	312	7468	828	.188 0057	1 169	40		
	30	0.644 0124	371	0151	312	8296	828	.187 8888	1 169	30		
	40	0495	370	0.764 9839	313	9125	829	.187 7719	1 169	20		
	50	0865	371	9526	312	9953	829	.187 6550	1 168	10		
			371		312		829		1 168			
6	0	0.644 1236		0.764 9214		0.842 0782		1.187 5382		0	54	
	10	1607	371	8902	312	1611	829	.187 4213	1 169	50		
	20	1978	371	8589	313	2439	828	.187 3045	1 168	40		
	30	2349	371	8277	312	3268	829	.187 1877	1 168	30		
	40	2720	370	7965	313	4097	829	.187 0709	1 168	20		
	50	3090	371	7652	312	4926	829	.186 9541	1 168	10		
			371		312		829		1 168			
7	0	0.644 3461		0.764 7340		0.842 5755		1.186 8373		0	53	
	10	3832	371	7028	312	6584	829	.186 7205	1 168	50		
	20	4203	371	6715	313	7413	829	.186 6038	1 167	40		
	30	4573	370	6403	312	8242	829	.186 4871	1 167	30		
	40	4944	371	6090	313	9071	829	.186 3703	1 168	20		
	50	5315	370	5778	312	9901	830	.186 2536	1 167	10		
			370		313		829		1 167			
8	0	0.644 5685		0.764 5465		0.843 0730		1.186 1369		0	52	
	10	6056	371	5153	312	1559	829	.186 0202	1 167	50		
	20	6427	371	4840	313	2389	830	.185 9036	1 166	40		
	30	6797	370	4528	312	3218	829	.185 7869	1 167	30		
	40	7168	370	4215	313	4048	830	.185 6703	1 166	20		
	50	7538	371	3903	312	4878	830	.185 5536	1 166	10		
			371		313		830		1 166			
9	0	0.644 7909		0.764 3590		0.843 5708		1.185 4370		0	51	
	10	8280	371	3277	313	6537	829	.185 3204	1 166	50		
	20	8650	370	2965	312	7367	830	.185 2038	1 166	40		
	30	9021	371	2652	313	8197	830	.185 0872	1 165	30		
	40	9391	370	2340	312	9027	830	.184 9707	1 165	20		
	50	9762	370	2027	313	9857	831	.184 8541	1 165	10		
			370		313		831		1 165			
10	0	0.645 0132		0.764 1714		0.844 0688		1.184 7376		0	50	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	"	Proportional Parts

49° 50'

40° 10'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
10	0	0.645 0132		0.764 1714		0.844 0688		1.184 7376		0	50	
	10	0503	371	1401	313	1518	830	.184 6211	1 165	50		Sine
	20	0873	371	1089	312	2348	830	.184 5046	1 165	40		369 370 371
	30	1244	371	0776	313	3179	831	.184 3881	1 165	30		1 36 9 37 0 37 1
	40	1614	370	0463	313	4009	830	.184 2716	1 165	20		2 73 8 74 0 74 2
	50	1984	371	0150	312	4840	831	.184 1551	1 165	10		3 110 7 111 0 111 3
							830		1 164			4 147 6 148 0 148 4
11	0	0.645 2355		0.763 9838		0.844 5670		1.184 0387		0	49	
	10	2725	370	9525	313	6501	831	.183 9222	1 165	50		5 184 5 185 0 185 5
	20	3096	371	9212	313	7332	831	.183 8058	1 164	40		6 221 4 222 0 222 6
	30	3466	370	8899	313	8162	830	.183 6894	1 164	30		7 258 3 259 0 259 7
	40	3836	371	8586	313	8993	831	.183 5730	1 164	20		8 295 2 296 0 296 8
	50	4207	370	8273	313	9824	831	.183 4566	1 164	10		9 332 1 333 0 333 9
12	0	0.645 4577		0.763 7960		0.845 0655		1.183 3402		0	48	
	10	4947	370	7647	313	1486	831	.183 2238	1 164	50		Cosine
	20	5317	371	7334	313	2317	831	.183 1075	1 163	40		312 313 314
	30	5688	370	7021	313	3149	832	.182 9912	1 163	30		1 31 2 31 3 31 4
	40	6058	370	6708	313	3980	831	.182 8748	1 164	20		2 62 4 62 6 62 8
	50	6428	370	6395	313	4811	832	.182 7585	1 163	10		3 93 6 93 9 94 2
									1 163			4 124 8 125 2 125 6
13	0	0.645 6798		0.763 6082		0.845 5643		1.182 6422		0	47	
	10	7169	371	5769	313	6474	831	.182 5259	1 163	50		5 156 0 156 5 157 0
	20	7539	370	5456	313	7306	832	.182 4097	1 162	40		6 187 2 187 8 188 4
	30	7909	370	5143	313	8137	831	.182 2934	1 163	30		7 218 4 219 1 219 8
	40	8279	370	4830	313	8969	832	.182 1772	1 162	20		8 249 6 250 4 251 2
	50	8649	370	4517	313	9801	832	.182 0609	1 163	10		9 280 8 281 7 282 6
									1 162			
14	0	0.645 9019		0.763 4204		0.846 0633		1.181 9447		0	46	
	10	9389	370	3891	313	1464	831	.181 8285	1 162	50		Tangent
	20	9760	371	3578	313	2296	832	.181 7123	1 162	40		830 831 832
	30	0.646 0130	370	3264	314	3128	832	.181 5962	1 161	30		1 83 0 83 1 83 2
	40	0500	370	2951	313	3961	833	.181 4800	1 162	20		2 166 0 166 2 166 4
	50	0870	370	2638	313	4793	832	.181 3638	1 162	10		3 249 0 249 3 249 6
									1 161			4 332 0 332 4 332 8
15	0	0.646 1240		0.763 2325		0.846 5625		1.181 2477		0	45	
	10	1610	370	2011	314	6457	832	.181 1316	1 161	50		5 415 0 415 5 416 0
	20	1980	370	1698	313	7290	833	.181 0155	1 161	40		6 498 0 498 6 499 2
	30	2350	370	1385	313	8122	832	.180 8994	1 161	30		7 581 0 581 7 582 4
	40	2720	370	1072	314	8954	832	.180 7833	1 161	20		8 664 0 664 8 665 6
	50	3090	370	0758	314	9787	833	.180 6672	1 161	10		9 747 0 747 9 748 8
									1 160			
16	0	0.646 3460		0.763 0445		0.847 0620		1.180 5512		0	44	
	10	3830	370	0132	313	1452	832	.180 4351	1 161	50		833 834 835
	20	4200	370	0762 9818	314	2285	833	.180 3191	1 161	40		1 83 3 83 4 83 5
	30	4569	369	9595	314	3118	833	.180 2031	1 160	30		2 166 6 166 8 167 0
	40	4939	370	9191	313	3951	833	.180 0871	1 160	20		3 249 9 250 2 250 5
	50	5309	370	8878	314	4784	833	.179 9711	1 160	10		4 333 2 333 6 334 0
17	0	0.646 5679		0.762 8564		0.847 5617		1.179 8551		0	43	
	10	6049	370	8251	313	6450	833	.179 7391	1 160	50		Cotangent
	20	6419	370	7937	314	7283	833	.179 6232	1 159	40		1170 1160
	30	6788	369	7624	313	8117	834	.179 5073	1 159	30		1 117 0 116 0
	40	7158	370	7310	314	8950	833	.179 3913	1 160	20		2 234 0 232 0
	50	7528	370	6997	314	9783	833	.179 2754	1 159	10		3 351 0 348 0
									1 159			4 468 0 464 0
18	0	0.646 7898		0.762 6683		0.848 0617		1.179 1595		0	42	
	10	8268	370	6370	313	1450	833	.179 0436	1 159	50		5 585 0 580 0
	20	8637	369	6056	314	2284	834	.178 9278	1 158	40		6 702 0 696 0
	30	9007	370	5742	314	3118	834	.178 8119	1 159	30		7 810 0 812 0
	40	9377	369	5429	313	3951	833	.178 6961	1 158	20		8 936 0 928 0
	50	9746	370	5115	313	4785	834	.178 5802	1 158	10		9 1053 0 1044 0
19	0	0.647 0116		0.762 4802		0.848 5619		1.178 4644		0	41	
	10	0486	370	4488	314	6453	834	.178 3486	1 158	50		1150
	20	0855	369	4174	314	7287	834	.178 2328	1 158	40		1 115 0
	30	1225	370	3860	313	8121	834	.178 1170	1 157	30		2 230 0
	40	1595	369	3547	314	8955	834	.178 0013	1 157	20		3 345 0
	50	1964	370	3233	314	9789	835	.177 8855	1 157	10		4 460 0
20	0	0.647 2334		0.762 2919		0.849 0624		1.177 7698		0	40	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	"	Proportional Parts

40° 20'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
20	0	0.647 2334		0.762 2919		0.849 0624		1.177 7698		0	40	
	10	2703	369	2605	314	1458	834	.177 6541	1157	50		
	20	3073	369	2292	313	2292	834	.177 5384	1157	40		
	30	3442	369	1978	314	3127	835	.177 4227	1157	30		
	40	3812	370	1664	314	3961	834	.177 3070	1157	20		
	50	4181	369	1350	314	4796	835	.177 1913	1157	10		
			370		314		835					
21	0	0.647 4551		0.762 1036		0.849 5631		1.177 0766		0	39	
	10	4920	369	0722	314	6466	835	.176 9600	1156	50		
	20	5290	370	0408	314	7300	834	.176 8444	1156	40		
	30	5659	369	0094	314	8135	835	.176 7287	1157	30		
	40	6029	370	0.761 9780	314	8970	835	.176 6131	1156	20		
	50	6398	369	9466	314	9805	835	.176 4975	1155	10		
			369		314		835					
22	0	0.647 6767		0.761 9152		0.850 0640		1.176 3820		0	38	
	10	7137	370	8838	314	1476	836	.176 2664	1156	50		
	20	7506	369	8524	314	2311	835	.176 1508	1156	40		
	30	7876	370	8210	314	3146	835	.176 0353	1155	30		
	40	8245	369	7896	314	3982	836	.175 9198	1155	20		
	50	8614	370	7582	314	4817	836	.175 8043	1155	10		
			370		314		836					
23	0	0.647 8984		0.761 7268		0.850 5653		1.175 6888		0	37	
	10	9353	369	6954	314	6488	835	.175 5733	1155	50		
	20	9722	369	6640	314	7324	836	.175 4578	1155	40		
	30	0.648 0091	369	6326	314	8159	835	.175 3423	1155	30		
	40	0461	370	6011	315	8995	836	.175 2269	1154	20		
	50	0830	369	5697	314	9831	836	.175 1114	1154	10		
			369		314		836					
24	0	0.648 1199		0.761 5383		0.851 0667		1.174 9960		0	36	
	10	1568	369	5069	314	1503	836	.174 8806	1154	50		
	20	1937	370	4755	314	2339	836	.174 7652	1154	40		
	30	2307	369	4440	315	3175	837	.174 6498	1153	30		
	40	2676	369	4126	314	4012	836	.174 5345	1154	20		
	50	3045	369	3812	315	4848	836	.174 4191	1153	10		
			369		315		836					
25	0	0.648 3414		0.761 3497		0.851 5684		1.174 3038		0	35	
	10	3783	369	3183	314	6521	837	.174 1884	1154	50		
	20	4152	369	2869	314	7357	836	.174 0731	1153	40		
	30	4521	369	2554	315	8194	837	.173 9578	1153	30		
	40	4890	369	2240	314	9030	836	.173 8425	1153	20		
	50	5259	369	1926	314	9867	837	.173 7272	1153	10		
			369		315		837		1152			
26	0	0.648 5628		0.761 1611		0.852 0704		1.173 6120		0	34	
	10	5997	369	1297	314	1541	837	.173 4967	1153	50		
	20	6366	369	0982	315	2377	836	.173 3815	1152	40		
	30	6735	369	0668	314	3214	837	.173 2663	1152	30		
	40	7104	369	0353	315	4051	837	.173 1511	1152	20		
	50	7473	369	0039	314	4889	838	.173 0359	1152	10		
			369		315		837		1152			
27	0	0.648 7842		0.760 9724		0.852 5726		1.172 9207		0	33	
	10	8211	369	9410	314	6563	837	.172 8055	1152	50		
	20	8580	369	9095	315	7400	837	.172 6903	1152	40		
	30	8949	369	8781	314	8238	838	.172 5752	1151	30		
	40	9318	369	8466	315	9075	837	.172 4601	1151	20		
	50	9687	369	8151	314	9913	838	.172 3449	1152	10		
			369		314		837		1151			
28	0	0.649 0056		0.760 7837		0.853 0750		1.172 2298		0	32	
	10	0424	368	7522	315	1588	838	.172 1147	1151	50		
	20	0793	369	7207	315	2426	838	.171 9997	1150	40		
	30	1162	369	6893	314	3263	837	.171 8846	1151	30		
	40	1531	369	6578	315	4101	838	.171 7695	1151	20		
	50	1900	369	6263	315	4939	838	.171 6545	1150	10		
			368		314		838		1150			
29	0	0.649 2268		0.760 5949		0.853 5777		1.171 5395		0	31	
	10	2637	369	5634	315	6615	838	.171 4244	1151	50		
	20	3006	368	5319	315	7454	839	.171 3094	1150	40		
	30	3374	369	5004	315	8292	838	.171 1945	1149	30		
	40	3743	369	4689	315	9130	838	.171 0795	1150	20		
	50	4112	368	4375	314	9968	839	.170 9645	1150	10		
			368		315		839		1149			
30	0	0.649 4480		0.760 4060		0.854 0807		1.170 8496		0	30	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

49° 30'

40° 30'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
30	0	0.649 4480		0.760 4060		0.854 0807		1.170 8496		0	30	
	10	4849	369	3745	315	1645	838	.170 7346	1 150	50		
	20	5218	369	3430	315	2484	839	.170 6197	1 149	40		
	30	5586	369	3115	315	3323	839	.170 5048	1 149	30		
	40	5955	369	2800	315	4161	838	.170 3899	1 149	20		
	50	6324	369	2485	315	5000	839	.170 2750	1 149	10		
			368		315		839		1 149			
31	0	0.649 6692		0.760 2170		0.854 5839		1.170 1601		0	29	
	10	7061	369	1855	315	6678	839	.170 0453	1 148	50		
	20	7429	368	1540	315	7517	839	.169 9304	1 149	40		
	30	7798	369	1225	315	8356	839	.169 8156	1 148	30		
	40	8166	369	0910	315	9195	839	.169 7008	1 148	20		
	50	8535	369	0595	315	0 855 0034	839	.169 5860	1 148	10		
			368		315				1 148			
32	0	0.649 8903		0.760 0280		0.855 0873		1 169 4712		0	28	
	10	9272	369	0.759 9965	315	1713	840	.169 3564	1 148	50		
	20	9640	368	9650	315	2552	839	.169 2416	1 148	40		
	30	0 650 0009	369	9335	315	3392	840	.169 1269	1 147	30		
	40	0377	368	9020	315	4231	839	.169 0121	1 148	20		
	50	0745	368	8704	316	5071	840	.168 8974	1 147	10		
			369		315		839		1 147			
33	0	0 650 1114		0.759 8389		0.855 5910		1.168 7827		0	27	
	10	1482	368	8074	315	6750	840	.168 6680	1 147	50		
	20	1850	368	7759	315	7590	840	.168 5533	1 147	40		
	30	2219	369	7444	315	8430	840	.168 4386	1 147	30		
	40	2587	368	7128	316	9270	840	.168 3240	1 146	20		
	50	2956	369	6813	315	0 856 0110	840	.168 2093	1 147	10		
			368		315				1 146			
34	0	0.650 3324		0.759 6498		0.856 0950		1.168 0947		0	26	
	10	3692	368	6183	315	1790	840	.167 9800	1 147	50		
	20	4060	368	5867	316	2630	840	.167 8654	1 146	40		
	30	4429	369	5552	315	3471	841	.167 7508	1 146	30		
	40	4797	368	5237	316	4311	841	.167 6362	1 146	20		
	50	5165	368	4921	315	5152	840	.167 5217	1 145	10		
			369		315				1 146			
35	0	0.650 5533		0.759 4606		0.856 5992		1 167 4071		0	25	
	10	5901	368	4290	316	6833	841	.167 2926	1 145	50		
	20	6270	369	3975	315	7673	840	.167 1780	1 146	40		
	30	6638	368	3660	315	8514	841	.167 0635	1 145	30		
	40	7006	368	3344	316	9355	841	.166 9490	1 145	20		
	50	7374	368	3029	315	0 857 0196	841	.166 8345	1 145	10		
			369		316				1 145			
36	0	0.650 7742		0.759 2713		0.857 1037		1.166 7200		0	24	
	10	8110	368	2398	315	1878	841	.166 6055	1 145	50		
	20	8478	368	2082	316	2719	841	.166 4911	1 144	40		
	30	8846	368	1766	316	3560	841	.166 3766	1 145	30		
	40	9214	368	1451	315	4401	841	.166 2622	1 144	20		
	50	9583	369	1135	316	5242	841	.166 1478	1 144	10		
			368		315		842		1 144			
37	0	0.650 9951		0.759 0820		0.857 6084		1.166 0334		0	23	
	10	0 651 0319	368	0504	316	6925	841	.165 9190	1 144	50		
	20	0687	367	0188	316	7767	842	.165 8046	1 144	40		
	30	1054	367	0 758 9873	315	8608	841	.165 6903	1 143	30		
	40	1422	368	9557	316	9450	842	.165 5759	1 144	20		
	50	1790	368	9241	316	0 858 0292	842	.165 4616	1 143	10		
			369		315		841		1 144			
38	0	0.651 2158		0.758 8926		0.858 1133		1.165 3472		0	22	
	10	2526	368	8610	316	1975	842	.165 2329	1 143	50		
	20	2894	368	8294	315	2817	842	.165 1186	1 143	40		
	30	3262	368	7979	316	3659	842	.165 0043	1 143	30		
	40	3630	368	7663	316	4501	842	.164 8901	1 142	20		
	50	3998	368	7347	316	5343	842	.164 7758	1 143	10		
			369		316				1 143			
39	0	0.651 4366		0.758 7031		0 858 6185		1.164 6615		0	21	
	10	4733	367	6715	316	7028	843	.164 5473	1 142	50		
	20	5101	368	6399	316	7870	842	.164 4331	1 142	40		
	30	5469	368	6084	316	8712	843	.164 3189	1 142	30		
	40	5837	368	5768	316	9555	843	.164 2047	1 142	20		
	50	6205	367	5452	316	0 859 0397	842	.164 0905	1 142	10		
					316		843		1 142			
40	0	0.651 6572		0.758 5136		0.859 1240		1.163 9763		0	20	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

49° 20'

49° 10'

40° 50'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
50	0	0.653 8609		0.756 6148		0.864 1926		1.157 1495		0	10	
	10	8976	367	5831	317	2773	847	.157 0361	1 134	50		
	20	9343	366	5514	317	3620	847	.156 9227	1 134	40		
	30	9709	366	5197	317	4467	847	.156 8093	1 134	30		
	40	0 654 0076	367	4880	317	5314	847	.156 6960	1 134	20		
	50	0443	367	4563	317	6161	848	.156 5826	1 133	10		
51	0	0.654 0810		0.756 4246		0.864 7009		1.156 4693		0	9	
	10	1176	366	3928	318	7856	847	.156 3560	1 133	50		Sine
	20	1543	367	3611	317	8703	847	.156 2427	1 133	40		365 366 367
	30	1910	367	3294	317	9551	848	.156 1294	1 133	30		1 36 5 36 6 36 7
	40	2276	366	2977	317	0 865 0398	847	.156 0161	1 133	20		2 73 0 73 2 73 4
	50	2643	367	2660	317	1246	848	.155 9029	1 132	10		3 109 5 109 8 110 1
52	0	0.654 3010		0.756 2343		0.865 2094		1.155 7896		0	8	
	10	3376	366	2025	318	2942	848	.155 6764	1 132	50		4 146 0 146 4 146 8
	20	3743	367	1708	317	3789	847	.155 5631	1 133	40		5 182 5 183 0 183 5
	30	4109	366	1391	317	4637	848	.155 4499	1 132	30		6 219 0 219 6 220 2
	40	4476	367	1074	317	5485	848	.155 3367	1 132	20		7 255 5 256 2 256 9
	50	4843	366	0756	317	6333	848	.155 2235	1 131	10		8 292 0 292 8 293 6
53	0	0.654 5209		0.756 0439		0.865 7181		1.155 1104		0	7	
	10	5576	367	0122	317	8030	849	.154 9972	1 132	50		9 328 5 329 4 330 3
	20	5942	366	0.755 9804	318	8878	848	.154 8840	1 132	40		
	30	6309	367	9487	317	9726	848	.154 7709	1 131	30		Cosine
	40	6675	366	9170	317	0 866 0575	849	.154 6578	1 131	20		317 318
	50	7042	367	8852	318	1423	848	.154 5447	1 131	10		1 31 7 31 8
54	0	0.654 7408		0.755 8535		0.866 2272		1.154 4316		0	6	
	10	7775	367	8217	318	3120	848	.154 3185	1 131	50		2 63 4 63 6
	20	8141	366	7900	317	3969	849	.154 2054	1 131	40		3 95 1 95 4
	30	8507	366	7582	318	4818	849	.154 0924	1 130	30		4 126 8 127 2
	40	8874	367	7265	317	5667	849	.153 9793	1 131	20		5 158 5 159 0
	50	9240	366	6947	317	6516	849	.153 8663	1 130	10		6 190 2 190 8
55	0	0.654 9607		0.755 6630		0.866 7365		1.153 7532		0	5	
	10	9973	366	6312	318	8214	849	.153 6402	1 130	50		7 221 9 222 6
	20	0.655 0339	366	5995	317	9063	849	.153 5272	1 129	40		8 253 6 254 4
	30	0706	367	5677	318	9912	849	.153 4143	1 129	30		9 285 3 286 2
	40	1072	366	5360	318	0.867 0761	850	.153 3013	1 130	20		
	50	1438	366	5042	318	1611	849	.153 1883	1 129	10		Tangent
56	0	0.655 1804		0.755 4724		0.867 2460		1.153 0754		0	4	
	10	2171	367	4407	317	3309	849	.152 9624	1 130	50		847 848
	20	2537	366	4089	318	4159	850	.152 8495	1 129	40		1 84 7 84 8
	30	2903	366	3771	318	5009	850	.152 7366	1 129	30		2 169 4 169 6
	40	3269	366	3454	317	5858	849	.152 6237	1 129	20		3 254 1 254 4
	50	3636	367	3136	318	6708	850	.152 5108	1 129	10		4 338 8 339 2
57	0	0.655 4002		0.755 2818		0.867 7558		1.152 3979		0	3	
	10	4368	366	2500	317	8408	850	.152 2851	1 128	50		5 423 5 424 0
	20	4734	366	2183	318	9258	850	.152 1722	1 128	40		6 508 2 508 8
	30	5100	366	1865	318	0.868 0108	850	.152 0594	1 128	30		7 582 9 583 6
	40	5466	366	1547	318	0958	850	.151 9466	1 128	20		8 677 6 678 4
	50	5832	366	1229	318	1808	851	.151 8338	1 128	10		9 762 3 763 2
58	0	0.655 6198		0.755 0911		0.868 2659		1.151 7210		0	2	
	10	6565	367	0593	318	3509	850	.151 6082	1 128	50		849 850 851
	20	6931	366	0276	317	4359	850	.151 4954	1 128	40		1 84 9 85 0 85 1
	30	7297	366	0.754 9958	318	5210	851	.151 3827	1 127	30		2 169 8 170 0 170 2
	40	7663	366	9640	318	6060	850	.151 2699	1 128	20		3 254 7 255 0 255 3
	50	8029	366	9322	318	6911	851	.151 1572	1 127	10		4 339 6 340 0 340 4
59	0	0.655 8395		0.754 9004		0.868 7762		1.151 0445		0	1	
	10	8761	366	8686	318	8612	850	.150 9318	1 127	50		5 424 5 425 5
	20	9127	366	8368	318	9463	851	.150 8191	1 127	40		6 509 4 510 0 510 6
	30	9493	365	8050	318	0.869 0314	851	.150 7064	1 127	30		7 594 3 595 0 595 7
	40	9858	366	7732	318	1165	851	.150 5937	1 126	20		8 679 2 680 0 680 8
	50	0.656 0224	366	7414	318	2016	851	.150 4811	1 127	10		9 764 1 765 0 765 9
60	0	0.656 0590		0.754 7096		0.869 2867		1.150 3684		0	0	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff			Proportional Parts

49° 0'

41° 0'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
0	0	0.656 0590		0.754 7096		0.869 2867		1.150 3684		0	60	
	10	0956	366	6778	318	3719	852	.150 2558	1 126	50		
	20	1322	366	6460	318	4570	851	.150 1432	1 126	40		
	30	1688	366	6142	318	5421	851	.150 0305	1 127	30		
	40	2054	366	5823	319	6273	852	.149 9180	1 125	20		
	50	2420	366	5505	318	7124	851	.149 8054	1 126	10		
			365		318		852		1 126			
1	0	0.656 2785		0.754 5187		0.869 7976		1.149 6928		0	59	Sine
	10	3151	366	4869	318	8827	851	.149 5802	1 126	50		365 366
	20	3517	366	4551	318	9679	852	.149 4677	1 125	40		1 36 5 36 6
	30	3883	366	4232	319	0 870 0531	852	.149 3552	1 125	30		2 73 0 73 2
	40	4248	365	3914	318	1383	852	.149 2426	1 126	20		3 109 5 109 8
	50	4614	366	3596	318	2235	852	.149 1301	1 125	10		4 146 0 146 4
			366		318		852		1 125			5 182 5 183 0
2	0	0.656 4980		0.754 3278		0.870 3087		1.149 0176		0	58	6 219 0 219 6
	10	5346	366	2959	319	3939	852	.148 9052	1 124	50		7 255 5 256 2
	20	5711	365	2641	318	4791	852	.148 7927	1 125	40		8 292 0 292 8
	30	6077	366	2323	319	5643	852	.148 6802	1 125	30		9 328 5 329 4
	40	6443	366	2004	318	6495	853	.148 5678	1 124	20		
	50	6808	365	1686	318	7348	852	.148 4554	1 124	10		Cosine
			366		318				1 125			318 319
3	0	0.656 7174		0.754 1368		0.870 8200		1.148 3429		0	57	1 31 8 31 9
	10	7539	365	1049	319	9053	853	.148 2305	1 124	50		2 63 6 63 8
	20	7905	366	0731	318	9905	852	.148 1181	1 124	40		3 95 4 95 7
	30	8271	366	0412	319	0 871 0758	853	.148 0058	1 123	30		4 127 2 127 6
	40	8636	365	0094	318	1610	852	.147 8934	1 124	20		5 159 0 159 5
	50	9002	366	0.753 9776	318	2463	853	.147 7810	1 124	10		6 190 8 191 4
			365		319		853		1 123			7 222 6 223 3
4	0	0.656 9367		0.753 9457		0.871 3316		1.147 6687		0	56	8 254 4 255 2
	10	9733	366	9139	318	4169	853	.147 5564	1 123	50		9 286 2 287 1
	20	0.657 0098	365	8820	319	5022	853	.147 4440	1 124	40		
	30	0464	366	8502	318	5875	853	.147 3317	1 123	30		Tangent
	40	0829	365	8183	319	6728	853	.147 2194	1 123	20		851 852 853
	50	1195	366	7864	319	7581	854	.147 1071	1 123	10		1 85 1 85 2 85 3
			365		318				1 122			2 170 2 170 4 170 6
5	0	0.657 1560		0.753 7546		0.871 8435		1.146 9949		0	55	3 255 3 255 6 255 9
	10	1926	366	7227	319	9288	853	.146 8826	1 123	50		4 340 4 340 8 341 2
	20	2291	365	6909	318	0.872 0142	854	.146 7704	1 122	40		5 425 5 426 0 426 5
	30	2656	365	6590	319	0995	853	.146 6581	1 123	30		6 510 6 511 2 511 8
	40	3022	366	6271	318	1849	854	.146 5459	1 122	20		7 595 7 596 4 597 1
	50	3387	365	5953	319	2702	853	.146 4337	1 122	10		8 680 8 681 6 682 4
			365		319		854		1 122			9 765 9 766 8 767 7
6	0	0.657 3762		0.753 5634		0.872 3556		1.146 3215		0	54	854 855 856
	10	4118	366	5315	319	4410	854	.146 2093	1 122	50		1 85 4 85 5 85 6
	20	4483	365	4996	319	5264	854	.146 0972	1 121	40		2 170 8 171 0 171 2
	30	4848	365	4678	318	6118	854	.145 9850	1 122	30		3 256 2 256 5 256 8
	40	5214	366	4359	319	6972	854	.145 8729	1 121	20		4 341 6 342 0 342 4
	50	5579	365	4040	319	7826	854	.145 7607	1 122	10		5 427 0 427 5 428 0
			365		319				1 121			6 512 4 513 0 513 6
7	0	0.657 5944		0.753 3721		0.872 8680		1.145 6486		0	53	7 597 8 598 5 599 2
	10	6309	365	3403	318	9534	854	.145 5365	1 121	50		8 682 2 684 0 684 8
	20	6675	366	3084	319	0.873 0388	855	.145 4244	1 121	40		9 768 6 769 5 770 4
	30	7040	365	2765	319	1243	855	.145 3123	1 121	30		
	40	7405	365	2446	319	2097	854	.145 2003	1 120	20		Cotangent
	50	7770	365	2127	319	2952	855	.145 0882	1 121	10		1130 1120
			365		319		854		1 120			1 113 0 112 0
8	0	0.657 8135		0.753 1808		0.873 3806		1.144 9762		0	52	2 226 0 224 0
	10	8501	366	1489	319	4661	855	.144 8641	1 121	50		3 319 0 336 0
	20	8866	365	1170	319	5516	855	.144 7521	1 120	40		4 452 0 448 0
	30	9231	365	0851	319	6371	855	.144 6401	1 120	30		5 565 0 560 0
	40	9596	365	0532	319	7225	854	.144 5281	1 120	20		6 678 0 672 0
	50	9961	365	0213	319	8080	855	.144 4161	1 120	10		7 791 0 784 0
			365		319				1 119			8 904 0 896 0
9	0	0.658 0326		0.752 9894		0.873 8935		1.144 3041		0	51	9 1017 0 1008 0
	10	0691	365	9575	319	9790	855	.144 1922	1 119	50		
	20	1056	365	9256	319	0.874 0646	856	.144 0802	1 120	40		
	30	1421	365	8937	319	1501	855	.143 9683	1 119	30		
	40	1786	365	8618	319	2356	856	.143 8564	1 119	20		
	50	2151	365	8299	319	3212	855	.143 7445	1 119	10		
			365		319				1 119			
10	0	0.658 2516		0.752 7980		0.874 4067		1.143 6326		0	50	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	"	Proportional Parts

48° 50'

41° 10'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
10	0	0.658 2516		0.752 7980		0.874 4067		1.143 6326		0	50	
	10	2881	365	7661	319	4923	856	.143 5207	1119	50		
	20	3246	365	7342	319	5778	855	.143 4088	1119	40		
	30	3611	365	7022	320	6634	856	.143 2970	1118	30		
	40	3976	365	6703	319	7490	856	.143 1851	1119	20		
	50	4341	365	6384	319	8345	855	.143 0733	1118	10		
			365				856		1118			
11	0	0.658 4706		0.752 6065		0.874 9201		1.142 9615		0	49	Sine
	10	5071	365	5746	319	0.875 0057	856	.142 8497	1118	50		364 365
	20	5435	364	5426	320	0913	856	.142 7379	1118	40		1 36 4 36 5
	30	5800	365	5107	319	1769	856	.142 6261	1118	30		2 72 8 73 0
	40	6165	365	4788	319	2626	857	.142 5143	1118	20		3 109 2 109 5
	50	6530	365	4468	320	3482	856	.142 4025	1118	10		4 145 6 146 0
			365		319		856		1117			5 182 0 182 5
12	0	0.658 6895		0.752 4149		0.875 4338		1.142 2908		0	48	6 218 4 219 0
	10	7259	364	3830	319	5195	857	.142 1791	1117	50		7 254 8 255 5
	20	7624	365	3510	320	6051	856	.142 0673	1118	40		8 291 2 292 0
	30	7989	365	3191	319	6908	856	.141 9556	1117	30		9 327 6 328 5
	40	8354	364	2872	320	7764	857	.141 8439	1117	20		
	50	8718	365	2552	319	8621	857	.141 7322	1117	10		
			365				857		1116			Cosine
13	0	0.658 9083		0.752 2233		0.875 9478		1.141 6206		0	47	319 320 321
	10	9448	365	1913	320	0.876 0335	857	.141 5089	1117	50		1 31 9 32 0 32 1
	20	9812	364	1594	319	1191	856	.141 3973	1116	40		2 63 8 64 0 64 2
	30	0 659 0177	365	1274	320	2048	857	.141 2856	1117	30		3 95 7 96 0 96 3
	40	0542	365	0955	319	2906	858	.141 1740	1116	20		4 127 6 128 0 128 4
	50	0906	364	0635	320	3763	857	.141 0624	1116	10		5 159 5 160 0 160 5
			365		319		857		1116			6 191 4 192 0 192 6
14	0	0.659 1271		0.752 0316		0.876 4620		1.140 9508		0	46	7 223 3 224 0 224 7
	10	1635	364	0996	320	5477	857	.140 8392	1116	50		8 255 2 256 0 256 8
	20	2000	365	9677	319	6335	858	.140 7276	1116	40		9 287 1 288 0 288 9
	30	2365	365	9357	320	7192	857	.140 6161	1115	30		
	40	2729	364	9037	320	8049	857	.140 5045	1116	20		
	50	3094	365	8718	319	8907	858	.140 3930	1115	10		
			364		320		858		1115			Tangent
15	0	0.659 3458		0.751 8398		0.876 9765		1.140 2815		0	45	855 856 857
	10	3823	365	8078	320	0.877 0622	857	.140 1699	1116	50		1 85 5 85 6 85 7
	20	4187	364	7759	319	1480	858	.140 0584	1115	40		2 171 0 171 2 171 4
	30	4552	365	7439	320	2338	858	.139 9470	1115	30		3 256 5 256 8 257 1
	40	4916	364	7119	319	3196	858	.139 8355	1114	20		4 342 0 342 4 342 8
	50	5280	365	6800	320	4054	858	.139 7240	1115	10		5 427 5 428 0 428 5
			365				858		1114			6 513 0 513 6 514 2
16	0	0.659 5645		0.751 6480		0.877 4912		1.139 6126		0	44	7 598 5 599 2 599 9
	10	6009	364	6160	320	5770	858	.139 5011	1115	50		8 684 0 684 8 685 6
	20	6374	365	5840	320	6628	858	.139 3897	1114	40		9 769 5 770 4 771 3
	30	6738	364	5520	320	7487	859	.139 2783	1114	30		
	40	7102	364	5201	319	8345	858	.139 1669	1114	20		
	50	7467	365	4881	320	9204	859	.139 0555	1114	10		
			364				858		1114			858 859 860
17	0	0.659 7831		0.751 4561		0.878 0062		1.138 9441		0	43	1 85 8 85 9 86 0
	10	8195	364	4241	320	0921	859	.138 8328	1113	50		2 171 6 171 8 172 0
	20	8560	365	3921	320	1779	858	.138 7214	1114	40		3 257 4 257 7 258 0
	30	8924	364	3601	320	2638	859	.138 6101	1114	30		4 343 2 343 6 344 0
	40	9288	364	3281	320	3497	858	.138 4987	1114	20		5 429 0 429 5 430 0
	50	9652	365	2961	320	4356	859	.138 3874	1113	10		6 514 8 515 4 516 0
			365				859		1113			7 600 6 601 3 602 0
18	0	0.660 0017		0.751 2641		0.878 5215		1.138 2761		0	42	8 686 4 687 2 688 0
	10	0381	364	2321	320	6074	859	.138 1648	1113	50		9 772 2 773 1 774 0
	20	0745	364	2001	320	6933	859	.138 0535	1113	40		
	30	1109	364	1681	320	7792	859	.137 9423	1112	30		
	40	1473	365	1361	320	8651	859	.137 8310	1113	20		
	50	1838	364	1041	320	9511	860	.137 7198	1112	10		
			364				859		1112			1120 1110
19	0	0.660 2202		0.751 0721		0.879 0370		1.137 6086		0	41	1 112 0 111 0
	10	2566	364	0401	320	1229	859	.137 4973	1113	50		2 224 0 222 0
	20	2930	364	0081	320	2089	860	.137 3861	1112	40		3 336 0 333 0
	30	3294	364	0761	320	2949	859	.137 2749	1111	30		4 448 0 441 0
	40	3658	364	9441	320	3808	859	.137 1638	1111	20		5 560 0 555 0
	50	4022	364	9121	321	4668	860	.137 0526	1112	10		6 672 0 666 0
			364				860		1112			7 784 0 777 0
20	0	0.660 4386		0.750 8800		0.879 5528		1.136 9414		0	40	8 896 0 888 0
												9 1008 0 999 0
		Cosine	Diff.	Sine	Diff.	Cotangent	Diff.	Tangent	Diff.	"	'	Proportional Parts

48° 40'

41° 20'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
20	0	0.660 4386		0.750 8800		0.879 5528		1.136 9414		0	40	
	10	4750	364	8480	320	6388	860	.136 8303	1 111	50		
	20	5114	364	8160	320	7248	860	.136 7192	1 111	40		
	30	5478	364	7840	320	8108	860	.136 6080	1 112	30		
	40	5842	364	7519	321	8968	860	.136 4969	1 111	20		
	50	6206	364	7199	320	9828	860	.136 3858	1 111	10		
21	0	0.660 6570		0.750 6879		0.880 0688		1.136 2747		0	39	
	10	6934	364	6559	320	1549	861	.136 1637	1 110	50		
	20	7298	364	6238	321	2409	860	.136 0526	1 111	40		
	30	7662	364	5918	320	3270	861	.135 9416	1 110	30		
	40	8026	364	5598	320	4130	860	.135 8305	1 111	20		
	50	8390	364	5277	321	4991	861	.135 7195	1 110	10		
22	0	0.660 8754		0.750 4957		0.880 5852		1.135 6085		0	38	
	10	9117	363	4636	321	6712	860	.135 4975	1 110	50		
	20	9481	364	4316	321	7573	861	.135 3865	1 110	40		
	30	9845	364	3995	320	8434	861	.135 2756	1 109	30		
	40	0.661 0209	364	3675	320	9295	861	.135 1646	1 110	20		
	50	0573	363	3355	321	0.881 0156	861	.135 0536	1 110	10		
23	0	0.661 0936		0.750 3034		0.881 1017		1.134 9427		0	37	
	10	1300	364	2714	320	1879	862	.134 8318	1 109	50		
	20	1664	364	2393	321	2740	861	.134 7209	1 109	40		
	30	2028	363	2072	321	3601	861	.134 6100	1 109	30		
	40	2391	363	1752	320	4463	862	.134 4991	1 109	20		
	50	2755	364	1431	321	5324	861	.134 3882	1 109	10		
24	0	0.661 3119		0.750 1111		0.881 6186		1.134 2773		0	36	
	10	3482	363	0790	321	7048	862	.134 1665	1 108	50		
	20	3846	364	0469	321	7909	861	.134 0557	1 108	40		
	30	4210	364	0149	320	8771	862	.133 9448	1 109	30		
	40	4573	363	0.749 9828	321	9633	862	.133 8340	1 108	20		
	50	4937	363	9507	320	0.882 0495	862	.133 7232	1 108	10		
25	0	0.661 5300		0.749 9187		0.882 1357		1.133 6124		0	35	
	10	5664	364	8866	321	2219	862	.133 5017	1 107	50		
	20	6027	363	8545	321	3081	862	.133 3909	1 108	40		
	30	6391	364	8224	321	3944	863	.133 2801	1 108	30		
	40	6755	363	7904	320	4806	862	.133 1694	1 107	20		
	50	7118	364	7583	321	5668	863	.133 0587	1 107	10		
26	0	0.661 7482		0.749 7262		0.882 6531		1.132 9479		0	34	
	10	7845	363	6941	321	7393	862	.132 8372	1 107	50		
	20	8208	363	6620	321	8256	863	.132 7265	1 107	40		
	30	8572	364	6300	320	9119	863	.132 6159	1 106	30		
	40	8935	363	5979	321	9982	863	.132 5052	1 107	20		
	50	9299	363	5658	321	0.883 0844	862	.132 3945	1 107	10		
27	0	0.661 9662		0.749 5337		0.883 1707		1.132 2839		0	33	
	10	0.662 0025	364	5016	321	2570	863	.132 1733	1 106	50		
	20	0389	363	4695	321	3433	863	.132 0626	1 107	40		
	30	0752	363	4374	321	4297	864	.131 9520	1 106	30		
	40	1116	364	4053	321	5160	863	.131 8414	1 106	20		
	50	1479	363	3732	321	6023	863	.131 7309	1 105	10		
28	0	0.662 1842		0.749 3411		0.883 6886		1.131 6203		0	32	
	10	2205	363	3090	321	7750	864	.131 5097	1 106	50		
	20	2569	364	2769	321	8613	863	.131 3992	1 105	40		
	30	2932	363	2448	321	9477	864	.131 2887	1 105	30		
	40	3295	363	2127	321	0.884 0341	864	.131 1781	1 106	20		
	50	3658	364	1806	322	1204	864	.131 0676	1 105	10		
29	0	0.662 4022		0.749 1484		0.884 2068		1.130 9571		0	31	
	10	4385	363	1163	321	2932	864	.130 8466	1 105	50		
	20	4748	363	0842	321	3796	864	.130 7362	1 104	40		
	30	5111	363	0521	321	4660	864	.130 6257	1 105	30		
	40	5474	363	0200	322	5524	864	.130 5152	1 105	20		
	50	5837	363	0.748 9878	321	6388	865	.130 4048	1 104	10		
30	0	0.662 6200		0.748 9557		0.884 7263		1.130 2944		0	30	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff			Proportional Parts

48° 30'

41° 30'

		Sine	Diff	Cosine	Diff.	Tangent	Diff	Cotangent	Diff.			Proportional Parts
30	0	0.662 6200		0.748 9557		0.884 7253		1.130 2944		0	30	Sine
	10	6564	364	9236	321	8117	864	130 1840	1104	50		362 363 364
	20	6927	363	8915	321	8981	865	.130 0736	1104	40		1 36 2 36 3 36 4
	30	7290	363	8593	322	9846	865	.129 9632	1104	30		2 72 4 72 6 72 8
	40	7653	363	8272	321	0.885 0710	864	.129 8528	1104	20		3 108 6 108 9 109 2
	50	8016	363	7951	322	1575	865	.129 7424	1103	10		4 144 8 145 2 145 6
31	0	0 662 8379		0.748 7629		0.885 2440		1.129 6321		0	29	Sine
	10	8742	363	7308	321	3305	865	.129 5217	1104	50		5 181 0 181 5 182 0
	20	9105	363	6987	321	4169	864	.129 4114	1103	40		6 217 2 217 8 218 4
	30	9468	363	6665	321	5034	865	.129 3011	1103	30		7 253 4 254 1 254 8
	40	9831	363	6344	322	5899	865	.129 1908	1103	20		8 289 6 290 4 291 2
	50	0.663 0194	363	6022	321	6764	866	.129 0805	1103	10		9 325 8 326 7 327 6
32	0	0.663 0557		0.748 5701		0.885 7630		1.128 9702		0	28	Cosine
	10	0920	363	5380	321	8495	865	.128 8600	1102	50		321 322 323
	20	1282	362	5058	322	9360	865	.128 7497	1103	40		1 32 1 32 2 32 3
	30	1645	363	4737	321	0.886 0225	865	.128 6395	1103	30		2 64 2 64 4 64 6
	40	2008	363	4415	322	1091	866	.128 5292	1103	20		3 96 3 96 6 96 9
	50	2371	363	4093	321	1956	865	.128 4190	1102	10		4 128 4 128 8 129 2
33	0	0 663 2734		0.748 3772		0.886 2822		1.128 3088		0	27	Cosine
	10	3097	363	3450	321	3688	866	.128 1986	1102	50		5 160 5 161 0 161 5
	20	3459	362	3129	321	4553	865	.128 0884	1102	40		6 192 6 193 2 193 8
	30	3822	363	2807	322	5419	866	.127 9782	1102	30		7 224 7 225 4 226 1
	40	4185	363	2486	321	6285	866	.127 8681	1101	20		8 256 8 257 6 258 4
	50	4548	362	2164	322	7151	866	.127 7579	1102	10		9 288 9 289 8 290 7
34	0	0 663 4910		0.748 1842		0.886 8017		1.127 6478		0	26	Tangent
	10	5273	363	1521	321	8883	866	.127 5377	1101	50		864 865 866
	20	5636	363	1199	322	9749	866	.127 4276	1101	40		1 86 4 86 5 86 6
	30	5999	362	0877	322	0.887 0616	867	.127 3175	1101	30		2 172 8 173 0 173 2
	40	6361	363	0555	321	1482	866	.127 2074	1101	20		3 250 5 250 8 250 9
	50	6724	363	0234	322	2348	867	.127 0973	1101	10		4 315 6 316 0 316 4
35	0	0 663 7087		0.747 9912		0.887 3215		1.126 9872		0	25	Tangent
	10	7449	362	9590	322	4082	867	.126 8772	1100	50		5 432 0 432 5 433 0
	20	7812	363	9268	322	4948	866	.126 7671	1101	40		6 518 4 519 0 519 6
	30	8174	362	8946	321	5815	867	.126 6571	1100	30		7 604 8 605 5 606 2
	40	8537	363	8625	322	6682	867	.126 5471	1100	20		8 691 2 692 0 692 8
	50	8900	362	8303	322	7549	866	.126 4371	1100	10		9 777 6 778 5 779 4
36	0	0 663 9262		0.747 7981		0.887 8415		1.126 3271		0	24	Tangent
	10	9625	363	7659	322	9282	867	.126 2171	1100	50		867 868 869
	20	9987	362	7337	322	0.888 0150	868	.126 1072	1099	40		1 86 7 86 8 86 9
	30	0 664 0350		7015	322	1017	867	.125 9972	1100	30		2 173 4 173 6 173 8
	40	0712	363	6693	322	1884	867	.125 8873	1099	20		3 260 1 260 4 260 7
	50	1075	362	6371	322	2751	868	.125 7773	1099	10		4 346 8 347 2 347 6
37	0	0.664 1437		0.747 6049		0.888 3619		1.125 6674		0	23	Cotangent
	10	1800	363	5727	322	4486	867	.125 5575	1099	50		5 433 5 434 0 434 5
	20	2162	362	5405	322	5354	868	.125 4476	1099	40		6 520 2 520 8 521 4
	30	2524	363	5083	322	6221	867	.125 3377	1099	30		7 606 9 607 6 608 3
	40	2887	362	4761	322	7089	868	.125 2279	1098	20		8 693 6 694 4 695 2
	50	3249	363	4439	322	7957	868	.125 1180	1099	10		9 780 3 781 2 782 1
38	0	0.664 3612		0.747 4117		0.888 8825		1.125 0081		0	22	Cotangent
	10	3974	362	3795	322	9692	867	.124 8983	1098	50		1110 1100
	20	4336	362	3473	322	0.889 0560	868	.124 7885	1098	40		1 111 0 110 0
	30	4699	363	3151	322	1428	868	.124 6787	1098	30		2 222 0 220 0
	40	5061	362	2829	323	2297	869	.124 5689	1098	20		3 333 0 330 0
	50	5423	362	2506	322	3165	868	.124 4591	1098	10		4 444 0 440 0
39	0	0.664 5785		0.747 2184		0.889 4033		1.124 3493		0	21	Cotangent
	10	6148	363	1862	322	4901	868	.124 2395	1098	50		5 555 0 550 0
	20	6510	362	1540	322	5770	869	.124 1298	1097	40		6 666 0 660 0
	30	6872	362	1218	323	6638	868	.124 0201	1097	30		7 777 0 770 0
	40	7234	362	0895	323	7507	869	.123 9103	1098	20		8 888 0 880 0
	50	7596	363	0573	322	8376	868	.123 8006	1097	10		9 999 0 990 0
40	0	0.664 7959		0.747 0251		0.889 9244		1.123 6909		0	20	1090
												1 109 0
												2 218 0
												3 327 0
												4 436 0
												5 545 0
												6 654 0
												7 763 0
												8 872 0
												9 981 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff.			Proportional Parts

48° 20'

41° 40'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff.			Proportional Parts
40	0	0.664 7959		0.747 0251		0.889 9244		1.123 6909		0	20	
	10	8321	362	0.746 9928	323	0 890 0113	869	.123 5812	1 097	50		
	20	8683	362	9606	322	0982	869	.123 4715	1 097	40		
	30	9045	362	9284	322	1851	869	.123 3619	1 096	30		
	40	9407	362	8961	323	2720	869	.123 2522	1 097	20		
	50	9769	362	8639	322	3589	869	.123 1426	1 096	10		
41	0	0 665 0131		0.746 8317		0.890 4458		1.123 0329		0	19	Sine
	10	0493	362	7994	323	5328	870	.122 9233	1 096	50		361 362 363
	20	0855	362	7672	322	6197	869	.122 8137	1 096	40		1 36 1 36 2 36 3
	30	1218	362	7349	323	7066	869	.122 7041	1 096	30		2 72 2 72 4 72 6
	40	1580	362	7027	322	7936	870	.122 5945	1 096	20		3 108 3 108 6 108 9
	50	1942	362	6704	323	8805	869	.122 4850	1 095	10		4 144 4 144 8 145 2
42	0	0.665 2304		0 746 6382		0 890 9675		1.122 3754		0	18	5 180 5 181 0 181 5
	10	2666	362	6059	323	0 891 0545	870	.122 2658	1 096	50		6 216 6 217 2 217 8
	20	3027	361	5737	322	1414	869	.122 1563	1 095	40		7 252 7 253 4 254 1
	30	3389	362	5414	322	2284	870	.122 0468	1 095	30		8 288 8 289 6 290 4
	40	3751	362	5092	322	3154	870	.121 9373	1 095	20		9 324 9 325 8 326 7
	50	4113	362	4769	323	4024	870	.121 8278	1 095	10		Cosine
43	0	0.665 4475		0.746 4446		0.891 4894		1.121 7183		0	17	322 323 324
	10	4837	362	4124	322	5765	871	.121 6088	1 095	50		1 32 2 32 3 32 4
	20	5199	362	3801	323	6635	870	.121 4993	1 095	40		2 64 1 64 6 64 8
	30	5561	362	3478	323	7505	870	.121 3899	1 094	30		3 96 6 96 9 97 2
	40	5923	362	3156	322	8375	870	.121 2804	1 094	20		4 128 8 129 2 129 6
	50	6284	361	2833	323	9246	871	.121 1710	1 094	10		5 161 0 161 5 162 0
44	0	0 665 6646		0.746 2510		0.892 0116		1.121 0616		0	16	6 193 2 193 8 194 4
	10	7008	362	2188	322	0987	871	.120 9522	1 094	50		7 225 4 226 1 226 8
	20	7370	362	1865	323	1858	871	.120 8428	1 094	40		8 257 6 258 4 259 2
	30	7731	361	1542	323	2729	870	.120 7334	1 094	30		9 289 8 290 7 291 6
	40	8093	362	1219	323	3599	871	.120 6240	1 094	20		Tangent
	50	8455	362	0897	323	4470	871	.120 5147	1 093	10		869 870 871
45	0	0 665 8817		0 746 0574		0 892 5341		1.120 4053		0	15	1 86 0 87 0 87 1
	10	9178	361	0251	323	6212	871	.120 2960	1 093	50		2 173 8 174 0 174 2
	20	9540	362	0.745 9928	323	7083	871	.120 1867	1 093	40		3 260 7 261 0 261 3
	30	9902	362	9605	323	7955	872	.120 0774	1 093	30		4 347 6 348 0 348 4
	40	0 666 0263		9282	323	8826	871	.119 9681	1 093	20		5 434 5 435 0 435 5
	50	0625	362	8959	323	9697	872	.119 8588	1 093	10		6 521 4 522 0 522 6
46	0	0 666 0987		0.745 8636		0.893 0569		1.119 7495		0	14	7 608 3 609 0 609 7
	10	1348	361	8314	322	1440	871	.119 6402	1 093	50		8 695 2 696 0 696 8
	20	1710	362	7991	323	2312	872	.119 5310	1 092	40		9 782 1 783 0 783 9
	30	2071	361	7668	323	3184	872	.119 4218	1 092	30		872 873 874
	40	2433	362	7345	323	4055	871	.119 3125	1 092	20		1 87 2 87 3 87 4
	50	2794	362	7022	323	4927	872	.119 2033	1 092	10		2 174 1 174 6 174 8
47	0	0 666 3156		0.745 6699		0.893 5799		1.119 0941		0	13	3 261 6 261 9 262 2
	10	3517	361	6375	324	6671	872	.118 9849	1 092	50		4 348 8 349 2 349 6
	20	3879	362	6052	323	7543	872	.118 8757	1 092	40		5 436 0 436 5 437 0
	30	4240	361	5729	323	8415	872	.118 7666	1 091	30		6 524 2 523 8 524 4
	40	4602	362	5406	323	9287	872	.118 6574	1 092	20		7 610 1 611 1 611 8
	50	4963	361	5083	323	0 894 0160	873	.118 5483	1 091	10		8 697 6 698 4 699 2
48	0	0.666 5325		0.745 4760		0.894 1032		1.118 4391		0	12	9 784 8 785 7 786 6
	10	5686	361	4437	323	1904	872	.118 3300	1 091	50		Cotangent
	20	6048	362	4114	323	2777	873	.118 2209	1 091	40		1100 1090
	30	6409	361	3790	324	3649	872	.118 1118	1 091	30		1 110 0 109 0
	40	6770	362	3467	323	4522	873	.118 0027	1 091	20		2 220 0 218 0
	50	7132	361	3144	323	5395	873	.117 8936	1 090	10		3 330 0 327 0
49	0	0.666 7493		0.745 2821		0.894 6268		1.117 7846		0	11	4 440 0 436 0
	10	7854	361	2498	323	7140	872	.117 6755	1 091	50		5 550 0 545 0
	20	8216	362	2174	324	8013	873	.117 5665	1 090	40		6 660 0 654 0
	30	8577	361	1851	323	8886	873	.117 4575	1 090	30		7 770 0 763 0
	40	8938	361	1528	323	9760	874	.117 3485	1 090	20		8 880 0 872 0
	50	9299	362	1204	324	0 895 0633	873	.117 2395	1 090	10		9 990 0 981 0
50	0	0 666 9661		0.745 0881		0.895 1506		1.117 1305		0	10	
												Proportional Parts
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff.			

48° 10'

41° 50'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
50	0	0.666 9661		0.745 0881		0.895 1506		1.117 1305		0	10	
	10	0.667 0022	361	0.744 9911	323	0.896 6747	874	1.116 3679	1090	50		
	20	0.667 0383	361	0.744 9034	324	0.897 2379	874	1.115 0215	1090	40		
	30	0.667 0744	361	0.744 8157	323	0.897 8036	874	1.113 6925	1089	30		
	40	0.667 1105	362	0.744 7280	323	0.898 3697	874	1.112 3615	1090	20		
	50	0.667 1467	361	0.744 6403	323	0.898 9358	874	1.111 0305	1089	10		
51	0	0.667 1828	361	0.744 5526	324	0.899 5019	874	1.109 6995	1089	0	9	
	10	0.667 2189	361	0.744 4649	323	0.899 5680	874	1.108 3685	1089	50		
	20	0.667 2550	361	0.744 3772	324	0.899 6341	874	1.107 0375	1089	40		
	30	0.667 2911	361	0.744 2895	323	0.899 6999	874	1.105 7065	1089	30		
	40	0.667 3272	361	0.744 2018	324	0.899 7658	874	1.104 3755	1089	20		
	50	0.667 3633	361	0.744 1141	324	0.899 8317	874	1.103 0445	1088	10		
52	0	0.667 3994	361	0.744 0264	323	0.899 8976	874	1.101 7135	1088	0	8	
	10	0.667 4355	361	0.743 9387	324	0.899 9635	874	1.100 3825	1088	50		
	20	0.667 4716	361	0.743 8510	323	0.899 9694	875	1.099 0515	1088	40		
	30	0.667 5077	361	0.743 7633	324	0.899 9753	874	1.097 7205	1088	30		
	40	0.667 5438	361	0.743 6756	324	0.899 9812	875	1.096 3895	1088	20		
	50	0.667 5799	361	0.743 5879	323	0.899 9871	875	1.095 0585	1088	10		
53	0	0.667 6160	361	0.743 5002	324	0.899 9930	874	1.093 7275	1087	0	7	
	10	0.667 6521	361	0.743 4125	323	0.899 9989	875	1.092 3965	1088	50		
	20	0.667 6882	361	0.743 3248	324	0.899 9948	875	1.091 0655	1088	40		
	30	0.667 7243	361	0.743 2371	323	0.899 9907	875	1.089 7345	1087	30		
	40	0.667 7604	361	0.743 1494	324	0.899 9866	875	1.088 4035	1088	20		
	50	0.667 7965	361	0.743 0617	324	0.899 9825	875	1.087 0725	1087	10		
54	0	0.667 8326	360	0.742 9740	323	0.899 9784	875	1.085 7415	1087	0	6	
	10	0.667 8687	361	0.742 8863	324	0.899 9743	875	1.084 4105	1087	50		
	20	0.667 9048	361	0.742 7986	323	0.899 9702	876	1.083 0795	1087	40		
	30	0.667 9409	361	0.742 7109	324	0.899 9661	875	1.081 7485	1087	30		
	40	0.667 9769	361	0.742 6232	324	0.899 9620	875	1.080 4175	1087	20		
	50	0.668 0130	361	0.742 5355	323	0.899 9579	876	1.079 0865	1086	10		
55	0	0.668 0490	361	0.742 4478	324	0.899 9538	876	1.077 7555	1086	0	5	
	10	0.668 0851	361	0.742 3601	323	0.899 9497	875	1.076 4245	1086	50		
	20	0.668 1212	361	0.742 2724	324	0.899 9456	876	1.075 0935	1086	40		
	30	0.668 1573	360	0.742 1847	323	0.899 9415	876	1.073 7625	1086	30		
	40	0.668 1933	361	0.742 0970	324	0.899 9374	876	1.072 4315	1086	20		
	50	0.668 2294	361	0.742 0093	324	0.899 9333	876	1.071 1005	1086	10		
56	0	0.668 2655	360	0.741 9216	323	0.899 9292	876	1.069 7695	1085	0	4	
	10	0.668 3015	361	0.741 8339	324	0.899 9251	876	1.068 4385	1086	50		
	20	0.668 3376	361	0.741 7462	323	0.899 9210	876	1.067 1075	1085	40		
	30	0.668 3737	361	0.741 6585	324	0.899 9169	876	1.065 7765	1085	30		
	40	0.668 4097	360	0.741 5708	323	0.899 9128	877	1.064 4455	1085	20		
	50	0.668 4458	360	0.741 4831	324	0.899 9087	876	1.063 1145	1085	10		
57	0	0.668 4818	361	0.741 3954	323	0.899 9046	877	1.061 7835	1085	0	3	
	10	0.668 5179	360	0.741 3077	325	0.899 9005	876	1.060 4525	1085	50		
	20	0.668 5539	361	0.741 2200	324	0.899 8964	877	1.059 1215	1085	40		
	30	0.668 5900	361	0.741 1323	323	0.899 8923	877	1.057 7905	1085	30		
	40	0.668 6261	360	0.741 0446	324	0.899 8882	877	1.056 4595	1084	20		
	50	0.668 6621	360	0.740 9569	324	0.899 8841	877	1.055 1285	1084	10		
58	0	0.668 6981	361	0.740 8692	323	0.899 8800	877	1.053 7975	1084	0	2	
	10	0.668 7342	360	0.740 7815	325	0.899 8759	877	1.052 4665	1084	50		
	20	0.668 7702	360	0.740 6938	324	0.899 8718	877	1.051 1355	1084	40		
	30	0.668 8063	360	0.740 6061	323	0.899 8677	877	1.049 8045	1084	30		
	40	0.668 8423	361	0.740 5184	324	0.899 8636	877	1.048 4735	1084	20		
	50	0.668 8784	360	0.740 4307	325	0.899 8595	878	1.047 1425	1084	10		
59	0	0.668 9144	360	0.740 3430	324	0.899 8554	877	1.045 8115	1083	0	1	
	10	0.668 9504	361	0.740 2553	324	0.899 8513	878	1.044 4805	1084	50		
	20	0.668 9865	360	0.740 1676	325	0.899 8472	877	1.043 1495	1083	40		
	30	0.669 0225	360	0.740 0799	324	0.899 8431	878	1.041 8185	1083	30		
	40	0.669 0585	361	0.739 9922	324	0.899 8390	878	1.040 4875	1083	20		
	50	0.669 0946	360	0.739 9045	325	0.899 8349	877	1.039 1565	1083	10		
60	0	0.669 1306		0.743 1448		0.900 4040		1.110 6125		0	0	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff			Proportional Parts

48° 0'

42° 0'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
0	0	0.669 1306		0.743 1448		0.900 4040		1.110 6125		0	60	
	10	1666	360	1124	324	4918	878	.110 5042	1 083	50		Sine
	20	2027	361	0799	325	5796	878	.110 3960	1 082	40		359 360 361
	30	2387	360	0475	324	6674	878	.110 2877	1 083	30		1 35 9 36 0 36 1
	40	2747	360	0151	324	7553	879	.110 1795	1 082	20		2 71 8 72 0 72 2
	50	3107	360	0742 9826	325	8431	878	.110 0713	1 082	10		3 107 7 108 0 108 3
			361		324		878		1 083			4 143 6 144 0 144 4
1	0	0.669 3468		0.742 9502		0 900 9309		1.109 9630		0	59	
	10	3828	360	9177	325	0 901 0187	878	.109 8548	1 082	50		5 179 5 180 0 180 5
	20	4188	360	8852	324	1066	879	.109 7466	1 082	40		6 215 4 216 0 216 6
	30	4548	360	8528	325	1944	878	.109 6385	1 081	30		7 251 3 252 0 252 7
	40	4908	360	8203	324	2823	879	.109 5303	1 082	20		8 287 2 288 0 288 8
	50	5268	360	7879	325	3702	879	.109 4221	1 082	10		9 323 1 324 0 324 9
			360		325		878		1 081			
2	0	0.669 5628		0.742 7554		0.901 4580		1.109 3140		0	58	
	10	5988	360	7230	324	5459	879	.109 2058	1 082	50		Cosine
	20	6349	361	6905	325	6338	879	.109 0977	1 081	40		324 325 326
	30	6709	360	6580	325	7217	879	.108 9896	1 081	30		1 32 4 32 5 32 6
	40	7069	360	6256	324	8096	879	.108 8815	1 081	20		2 64 8 65 0 65 2
	50	7429	360	5931	325	8975	879	.108 7734	1 081	10		3 97 2 97 5 97 8
			360		325		879		1 081			4 129 6 130 0 130 4
3	0	0.669 7789		0.742 5606		0 901 9854		1 108 6653		0	57	
	10	8149	360	5281	325	0 902 0734	880	.108 5573	1 080	50		5 162 0 162 5 163 0
	20	8509	360	4957	324	1613	879	.108 4492	1 081	40		6 194 4 195 0 195 6
	30	8869	360	4632	325	2493	880	.108 3412	1 080	30		7 226 8 227 5 228 2
	40	9229	360	4307	325	3372	879	.108 2331	1 081	20		8 259 2 260 0 260 8
	50	9588	359	3982	325	4252	880	.108 1251	1 080	10		9 291 6 292 5 293 4
			360		324		879		1 080			
4	0	0.669 9948		0.742 3658		0.902 5131		1.108 0171		0	56	
	10	0.670 0308	360	3333	325	6011	880	.107 9091	1 080	50		Tangent
	20	0668	360	3008	325	6891	880	.107 8011	1 080	40		878 879 880
	30	1028	360	2683	325	7771	880	.107 6932	1 079	30		1 87 8 87 9 88 0
	40	1388	360	2358	325	8651	880	.107 5852	1 080	20		2 175 6 175 8 176 0
	50	1748	360	2033	325	9531	880	.107 4773	1 079	10		3 263 4 263 7 264 0
			360		325		880		1 080			4 351 2 351 6 352 0
5	0	0 670 2108		0.742 1708		0.903 0411		1 107 3693		0	55	
	10	2467	359	1383	325	1291	880	.107 2614	1 079	50		5 439 0 439 5 440 0
	20	2827	360	1058	325	2171	880	.107 1535	1 079	40		6 526 8 527 4 528 0
	30	3187	360	0733	325	3052	881	.107 0456	1 079	30		7 614 6 615 3 616 0
	40	3547	359	0408	325	3932	881	.106 9377	1 079	20		8 702 4 703 2 704 0
	50	3906	360	0083	325	4813	880	.106 8298	1 079	10		9 790 2 791 1 792 0
			360		325		880		1 079			
6	0	0.670 4266		0.741 9758		0.903 5693		1 106 7219		0	54	
	10	4626	360	9433	325	6574	881	.106 6141	1 078	50		881 882 883
	20	4986	360	9108	325	7455	881	.106 5062	1 079	40		1 88 1 88 2 88 3
	30	5345	359	8783	325	8336	881	.106 3984	1 078	30		2 176 2 176 4 176 6
	40	5705	360	8458	325	9217	881	.106 2906	1 078	20		3 264 3 264 6 264 9
	50	6065	359	8133	325	0 904 0098	881	.106 1828	1 078	10		4 352 4 352 8 353 2
			360		325		881		1 078			5 440 5 441 0 441 5
7	0	0.670 6424		0.741 7808		0.904 0979		1.106 0750		0	53	
	10	6784	360	7483	325	1860	881	.105 9672	1 078	50		6 528 6 529 2 529 8
	20	7143	359	7158	325	2741	881	.105 8594	1 078	40		7 616 7 617 4 618 1
	30	7503	360	6832	326	3622	881	.105 7516	1 078	30		8 704 8 705 6 706 4
	40	7863	360	6507	325	4504	882	.105 6439	1 077	20		9 792 9 793 8 794 7
	50	8222	359	6182	325	5385	882	.105 5361	1 077	10		
			360		325		882		1 077			
8	0	0.670 8582		0.741 5857		0.904 6267		1.105 4284		0	52	
	10	8941	359	5532	325	7148	881	.105 3207	1 077	50		Cotangent
	20	9301	360	5206	326	8030	882	.105 2130	1 077	40		1090 1080
	30	9660	360	4881	325	8912	882	.105 1053	1 077	30		1 109 0 108 0
	40	0.671 0020	360	4556	325	9793	881	.104 9976	1 077	20		2 218 0 216 0
	50	0379	359	4230	326	0 905 0675	882	.104 8899	1 077	10		3 327 0 324 0
			360		325		882		1 076			4 436 0 432 0
9	0	0.671 0739		0.741 3905		0.905 1557		1 104 7823		0	51	
	10	1098	359	3580	325	2439	882	.104 6746	1 077	50		5 545 0 540 0
	20	1457	359	3254	326	3321	882	.104 5670	1 076	40		6 654 0 648 0
	30	1817	360	2929	325	4204	883	.104 4594	1 076	30		7 763 0 756 0
	40	2176	359	2603	326	5086	882	.104 3517	1 077	20		8 872 0 864 0
	50	2536	360	2278	325	5968	882	.104 2441	1 076	10		9 981 0 972 0
			359		325		883		1 076			
10	0	0.671 2895		0.741 1953		0.905 6851		1.104 1365		0	50	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff			Proportional Parts

47° 50'

42° 10'

'	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
10	0	0.671 2895		0.741 1953		0.905 8651		1.104 1365		0	50	
	10	3254	359	1627	326	7733	882	.104 0290	1.075	50		
	20	3614	360	1302	325	8616	883	.103 9214	1.076	40		
	30	3973	359	0976	326	9499	883	.103 8138	1.076	30		
	40	4332	359	0651	325	0.906 0381	882	.103 7063	1.075	20		
	50	4691	359	0325	326	1264	883	.103 5988	1.075	10		
			360		325				1.076			
11	0	0.671 5051		0.741 0000		0.906 2147		1.103 4912		0	49	
	10	5410	359	0.740 9674	326	3030	883	.103 3837	1.075	50		
	20	5769	359	9348	326	3913	883	.103 2762	1.075	40		
	30	6128	359	9023	325	4796	883	.103 1687	1.075	30		
	40	6488	360	8697	326	5680	884	.103 0613	1.074	20		
	50	6847	359	8372	325	6563	883	.102 9538	1.075	10		
			359		326				1.075			
12	0	0.671 7206		0.740 8046		0.906 7446		1.102 8463		0	48	
	10	7565	359	7720	326	8330	884	.102 7389	1.074	50		
	20	7924	359	7395	325	9213	883	.102 6315	1.074	40		
	30	8283	359	7069	326	0.907 0097	884	.102 5241	1.074	30		
	40	8642	359	6743	326	0981	884	.102 4166	1.075	20		
	50	9001	359	6417	325	1864	883	.102 3092	1.074	10		
			360		325		884		1.073			
13	0	0.671 9361		0.740 6092		0.907 2748		1.102 2019		0	47	
	10	9720	359	5766	326	3632	884	.102 0945	1.074	50		
	20	0.672 0079	359	5440	326	4516	884	.101 9871	1.074	40		
	30	0438	359	5114	326	5400	884	.101 8798	1.073	30		
	40	0797	359	4788	326	6284	884	.101 7724	1.074	20		
	50	1156	359	4463	325	7169	885	.101 6651	1.073	10		
			359		326		884		1.073			
14	0	0.672 1515		0.740 4137		0.907 8053		1.101 5578		0	46	
	10	1874	359	3811	326	8937	884	.101 4505	1.073	50		
	20	2232	358	3485	326	9822	885	.101 3432	1.073	40		
	30	2591	359	3159	326	0.908 0706	884	.101 2359	1.073	30		
	40	2950	359	2833	326	1591	885	.101 1286	1.073	20		
	50	3309	359	2507	326	2476	885	.101 0214	1.072	10		
			359		326		884		1.072			
15	0	0.672 3668		0.740 2181		0.908 3360		1.100 9141		0	45	
	10	4027	359	1855	326	4245	885	.100 8069	1.072	50		
	20	4386	359	1529	326	5130	885	.100 6997	1.072	40		
	30	4745	359	1203	326	6015	885	.100 5925	1.072	30		
	40	5103	358	0877	326	6900	885	.100 4853	1.072	20		
	50	5462	359	0551	326	7786	886	.100 3781	1.072	10		
			359		326		885		1.072			
16	0	0.672 5821		0.740 0225		0.908 8671		1.100 2709		0	44	
	10	6180	359	0.739 9899	326	9556	885	.100 1637	1.072	50		
	20	6539	359	9573	326	0.909 0442	886	.100 0566	1.071	40		
	30	6897	358	9247	326	1327	885	.099 9494	1.072	30		
	40	7256	359	8921	326	2213	886	.099 8423	1.071	20		
	50	7615	358	8595	326	3098	885	.099 7352	1.071	10		
			358		327		886		1.071			
17	0	0.672 7973		0.739 8268		0.909 3984		1.099 6281		0	43	
	10	8332	359	7942	326	4870	886	.099 5210	1.071	50		
	20	8691	359	7616	326	5756	886	.099 4139	1.071	40		
	30	9049	358	7290	326	6642	886	.099 3068	1.071	30		
	40	9408	359	6963	327	7528	886	.099 1997	1.071	20		
	50	9767	358	6637	326	8414	886	.099 0927	1.070	10		
			358		326				1.070			
18	0	0.673 0125		0.739 6311		0.909 9300		1.098 9857		0	42	
	10	0484	359	5985	326	0.910 0186	886	.098 8786	1.071	50		
	20	0842	359	5658	327	1072	886	.098 7716	1.070	40		
	30	1201	358	5332	326	1959	887	.098 6646	1.070	30		
	40	1559	359	5006	326	2845	886	.098 5576	1.070	20		
	50	1918	358	4679	327	3732	887	.098 4506	1.070	10		
			358		326				1.070			
19	0	0.673 2276		0.739 4353		0.910 4619		1.098 3436		0	41	
	10	2635	359	4027	326	5505	886	.098 2367	1.069	50		
	20	2993	358	3700	327	6392	887	.098 1297	1.070	40		
	30	3352	359	3374	326	7279	887	.098 0228	1.069	30		
	40	3710	358	3047	327	8166	887	.097 9159	1.069	20		
	50	4069	359	2721	326	9053	887	.097 8089	1.070	10		
			358		327				1.069			
20	0	0.673 4427		0.739 2394		0.910 9940		1.097 7020		0	40	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	'	Proportional Parts

47° 40'

42° 20'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff.			Proportional Parts
20	0	0.673 4427		0.739 2394		0.910 9940		1.097 7020		0	40	
	10	4785	358	2068	326	0.911 0827	887	.097 5951	1.069	50		
	20	5144	359	1741	327	1715	888	.097 4883	1.068	40		
	30	5502	358	1415	326	2602	887	.097 3814	1.069	30		
	40	5860	358	1088	327	3490	888	.097 2745	1.069	20		
	50	6219	359	0762	326	4377	887	.097 1677	1.068	10		
			358		327		888		1.068			
21	0	0.673 6577		0.739 0436		0.911 5265		1.097 0609		0	39	
	10	6935	358	8148	327	6152	887	.096 9540	1.069	50		
	20	7294	359	7822	326	7040	888	.096 8472	1.068	40		
	30	7652	358	9455	327	7928	888	.096 7404	1.068	30		
	40	8010	358	9128	326	8816	888	.096 6336	1.068	20		
	50	8368	359	8802	327	9704	888	.096 5268	1.067	10		
22	0	0.673 8727		0.738 8475		0.912 0592		1.096 4201		0	38	
	10	9085	358	8148	327	1480	888	.096 3133	1.068	50		
	20	9443	358	7822	326	2368	888	.096 2066	1.067	40		
	30	9801	358	7495	327	3257	889	.096 0998	1.068	30		
	40	0.674 0159	358	7168	327	4145	888	.095 9931	1.067	20		
	50	0517	359	6841	326	5033	888	.095 8864	1.067	10		
							889		1.067			
23	0	0.674 0876		0.738 6515		0.912 5922		1.095 7797		0	37	
	10	1234	358	6188	327	6811	889	.095 6730	1.067	50		
	20	1592	358	5861	327	7699	888	.095 5663	1.067	40		
	30	1950	358	5534	327	8588	889	.095 4597	1.066	30		
	40	2308	358	5207	327	9477	889	.095 3530	1.067	20		
	50	2666	358	4880	327	0.913 0366	889	.095 2464	1.066	10		
24	0	0.674 3024		0.738 4553		0.913 1255		1.095 1397		0	36	
	10	3382	358	4226	327	2144	889	.095 0331	1.066	50		
	20	3740	358	3900	326	3033	889	.094 9265	1.066	40		
	30	4098	358	3573	327	3922	889	.094 8199	1.066	30		
	40	4456	358	3246	327	4812	890	.094 7133	1.066	20		
	50	4814	358	2919	327	5701	889	.094 6067	1.066	10		
							890		1.065			
25	0	0.674 5172		0.738 2592		0.913 6591		1.094 5002		0	35	
	10	5530	358	2265	327	7480	889	.094 3936	1.066	50		
	20	5887	357	1938	327	8370	890	.094 2871	1.065	40		
	30	6245	358	1611	327	9259	889	.094 1806	1.065	30		
	40	6603	358	1283	328	0.914 0149	890	.094 0740	1.066	20		
	50	6961	358	0956	327	1039	890	.093 9675	1.065	10		
26	0	0.674 7319		0.738 0629		0.914 1929		1.093 8610		0	34	
	10	7677	358	0302	327	2819	890	.093 7545	1.065	50		
	20	8035	358	9975	327	3709	890	.093 6481	1.064	40		
	30	8392	357	9648	327	4599	891	.093 5416	1.065	30		
	40	8750	358	9321	327	5490	890	.093 4352	1.064	20		
	50	9108	358	8993	328	6380	890	.093 3287	1.065	10		
27	0	0.674 9466		0.737 8666		0.914 7270		1.093 2223		0	33	
	10	9823	357	8339	327	8161	891	.093 1159	1.064	50		
	20	0.675 0181	358	8012	327	9052	891	.093 0095	1.064	40		
	30	0539	358	7684	328	9942	890	.092 9031	1.064	30		
	40	0896	357	7357	327	0.915 0833	891	.092 7967	1.064	20		
	50	1254	358	7030	327	1724	891	.092 6903	1.064	10		
28	0	0.675 1612		0.737 6703		0.915 2615		1.092 5840		0	32	
	10	1969	357	6375	328	3506	891	.092 4776	1.064	50		
	20	2327	358	6048	327	4397	891	.092 3713	1.064	40		
	30	2684	357	5720	328	5288	891	.092 2649	1.064	30		
	40	3042	358	5393	327	6179	891	.092 1586	1.063	20		
	50	3400	357	5066	328	7070	892	.092 0523	1.063	10		
29	0	0.675 3757		0.737 4738		0.915 7962		1.091 9460		0	31	
	10	4115	358	4411	327	8853	891	.091 8397	1.063	50		
	20	4472	357	4083	328	9745	892	.091 7335	1.062	40		
	30	4830	358	3756	327	0.916 0636	891	.091 6272	1.063	30		
	40	5187	357	3428	328	1528	892	.091 5210	1.062	20		
	50	5545	358	3101	327	2420	892	.091 4147	1.063	10		
30	0	0.675 5902		0.737 2773		0.916 3312		1.091 3085		0	30	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff.			Proportional Parts

47° 30'

42° 30'

	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
30	0	0.675 5902		0.737 2773		0.916 3312		1.091 3085		0	30	
	10	6260	358	2446	327	4204	892	.091 2023	1 062	50		
	20	6617	357	2118	328	5096	892	.091 0961	1 062	40		
	30	6974	357	1791	327	5988	892	.090 9899	1 062	30		
	40	7332	358	1463	328	6880	892	.090 8837	1 062	20		
	50	7689	357	1135	328	7772	892	.090 7775	1 062	10		
			357		327		893		1 061			
31	0	0.675 8046		0.737 0808		0.916 8665		1.090 6714		0	29	
	10	8404	358	0480	328	9557	892	.090 5652	1 062	50		
	20	8761	357	0153	327	0 917 0449	892	.090 4591	1 061	40		
	30	9118	357	0 736 9825	328	1342	893	.090 3530	1 061	30		
	40	9476	358	9497	328	2235	893	.090 2469	1 061	20		
	50	9833	357	9169	328	3127	892	.090 1408	1 061	10		
			357		327		893		1 061			
32	0	0.676 0190		0.736 8842		0.917 4020		1 090 0347		0	28	
	10	0547	357	8514	328	4913	893	.089 9286	1 061	50		
	20	0905	358	8186	328	5806	893	.089 8225	1 061	40		
	30	1262	357	7858	328	6699	893	.089 7165	1 061	30		
	40	1619	357	7531	327	7592	893	.089 6104	1 061	20		
	50	1976	357	7203	328	8485	893	.089 5044	1 060	10		
			357		328		894		1 060			
33	0	0.676 2333		0.736 6875		0 917 9379		1.089 3984		0	27	
	10	2691	358	6547	328	0 918 0272	893	.089 2923	1 061	50		
	20	3048	357	6219	328	1165	893	.089 1863	1 060	40		
	30	3405	357	5891	328	2059	894	.089 0803	1 060	30		
	40	3762	357	5563	328	2953	894	.088 9744	1 059	20		
	50	4119	357	5235	328	3846	893	.088 8684	1 060	10		
			357		327		894		1 060			
34	0	0.676 4476		0.736 4908		0.918 4740		1.088 7624		0	26	
	10	4833	357	4580	328	5634	894	.088 6565	1 059	50		
	20	5190	357	4252	328	6528	894	.088 5506	1 059	40		
	30	5547	357	3924	328	7422	894	.088 4446	1 060	30		
	40	5904	357	3596	328	8316	894	.088 3387	1 059	20		
	50	6261	357	3268	328	9210	894	.088 2328	1 059	10		
			357		328		894		1 059			
35	0	0.676 6618		0.736 2940		0.919 0104		1.088 1269		0	25	
	10	6975	357	2611	329	0999	895	.088 0211	1 058	50		
	20	7332	357	2283	328	1893	894	.087 9152	1 059	40		
	30	7689	357	1955	328	2787	894	.087 8093	1 059	30		
	40	8046	357	1627	328	3682	895	.087 7035	1 058	20		
	50	8403	357	1299	328	4577	895	.087 5977	1 058	10		
			357		328		894		1 059			
36	0	0.676 8760		0.736 0971		0.919 5471		1.087 4918		0	24	
	10	9117	357	0643	328	6366	895	.087 3860	1 058	50		
	20	9473	356	0315	328	7261	895	.087 2802	1 058	40		
	30	9830	357	0 735 9986	329	8156	895	.087 1744	1 058	30		
	40	0.677 0187	357	9658	328	9051	895	.087 0687	1 057	20		
	50	0544	357	9330	328	9946	895	.086 9629	1 058	10		
			357		328		895		1 058			
37	0	0.677 0901		0.735 9002		0.920 0841		1.086 8571		0	23	
	10	1257	356	8673	329	1737	896	.086 7514	1 057	50		
	20	1614	357	8345	328	2632	895	.086 6456	1 058	40		
	30	1971	357	8017	328	3527	895	.086 5399	1 057	30		
	40	2328	357	7688	329	4423	896	.086 4342	1 057	20		
	50	2684	356	7360	328	5319	896	.086 3285	1 057	10		
			357		328		895		1 057			
38	0	0.677 3041		0.735 7032		0.920 6214		1.086 2228		0	22	
	10	3398	357	6703	329	7110	896	.086 1171	1 057	50		
	20	3754	356	6375	328	8006	896	.086 0115	1 056	40		
	30	4111	357	6047	328	8902	896	.085 9058	1 057	30		
	40	4468	357	5718	329	9798	896	.085 8002	1 056	20		
	50	4824	356	5390	328	0 921 0694	896	.085 6945	1 057	10		
			357		329		896		1 056			
39	0	0.677 5181		0.735 5061		0.921 1590		1.085 5889		0	21	
	10	5537	356	4733	328	2486	896	.085 4833	1 056	50		
	20	5894	357	4404	329	3382	896	.085 3777	1 056	40		
	30	6250	356	4076	328	4279	897	.085 2721	1 056	30		
	40	6607	357	3747	329	5175	896	.085 1665	1 056	20		
	50	6963	356	3419	328	6072	897	.085 0610	1 055	10		
			357		329		897		1 056			
40	0	0.677 7320		0.735 3090		0.921 6969		1.084 9554		0	20	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff.	"	'	Proportional Parts

47° 20'

42° 40'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff.			Proportional Parts
40	0	0.677 7320		0.735 3090		0.921 6969		1.084 9554		0	20	
	10	7676	356	2761	329	7865	896	.084 8499	1 055	50		Sine
	20	8033	357	2433	328	8762	897	.084 7443	1 056	40		355 356 357
	30	8389	356	2104	329	9659	897	.084 6388	1 055	30		1 35 5 35 6 35 7
	40	8746	357	1776	328	0.922 0556	897	.084 5333	1 055	20		2 71 0 71 2 71 4
	50	9102	356	1447	329	1453	897	.084 4278	1 055	10		3 106 5 106 8 107 1
			357									4 142 0 142 4 142 8
41	0	0.677 9459		0.735 1118		0.922 2350		1.084 3223		0	19	
	10	9815	356	0790	328	3247	897	.084 2168	1 055	50		5 177 5 178 0 178 5
	20	0.678 0171	356	0461	329	4145	898	.084 1114	1 054	40		6 213 0 213 6 214 2
	30	0528	357	0132	329	5042	897	.084 0059	1 055	30		7 248 5 249 2 249 9
	40	0884	356	0.734 9803	328	5939	897	.083 9005	1 054	20		8 284 0 284 8 285 6
	50	1240	357	9475	329	6837	898	.083 7950	1 055	10		9 319 5 320 4 321 3
							897		1 054			
42	0	0.678 1597		0.734 9146		0.922 7734		1.083 6896		0	18	Cosine
	10	1953	356	8817	329	8632	898	.083 5842	1 054	50		328 329 330
	20	2309	356	8488	328	9530	898	.083 4788	1 054	40		1 32 8 32 9 33 0
	30	2666	357	8160	328	0.923 0428	898	.083 3734	1 054	30		2 65 6 65 8 66 0
	40	3022	356	7831	329	1326	898	.083 2680	1 054	20		3 98 4 98 7 99 0
	50	3378	356	7502	329	2224	898	.083 1627	1 053	10		4 131 2 131 6 132 0
			356				898		1 054			5 164 0 164 5 165 0
43	0	0.678 3734		0.734 7173		0.923 3122		1.083 0673		0	17	
	10	4090	356	6844	329	4020	898	.082 9520	1 053	50		6 196 8 197 4 198 0
	20	4447	357	6515	329	4918	898	.082 8466	1 054	40		7 229 6 230 3 231 0
	30	4803	356	6186	329	5816	898	.082 7413	1 053	30		8 262 4 263 2 264 0
	40	5159	356	5857	329	6715	899	.082 6360	1 053	20		9 295 2 296 1 297 0
	50	5515	356	5528	329	7613	898	.082 5307	1 053	10		
			356				899		1 053			Tangent
44	0	0.678 5871		0.734 5199		0.923 8512		1.082 4254		0	16	
	10	6227	356	4870	329	9410	898	.082 3201	1 053	50		896 897
	20	6583	356	4541	329	0.924 0309	899	.082 2149	1 052	40		1 89 6 89 7
	30	6939	356	4212	329	1208	899	.082 1096	1 053	30		2 179 2 179 4
	40	7295	356	3883	329	2107	899	.082 0044	1 052	20		3 268 8 269 1
	50	7651	356	3554	329	3006	899	.081 8991	1 053	10		4 358 4 358 8
			356				899		1 052			5 448 0 448 5
45	0	0.678 8007		0.734 3225		0.924 3905		1.081 7939		0	15	
	10	8363	356	2896	329	4804	899	.081 6887	1 052	50		6 537 6 538 2
	20	8719	356	2567	329	5703	899	.081 5835	1 052	40		7 627 2 627 9
	30	9075	356	2238	329	6603	900	.081 4783	1 052	30		8 716 8 717 6
	40	9431	356	1909	329	7502	899	.081 3731	1 051	20		9 806 4 807 3
	50	9787	356	1579	330	8401	899	.081 2680	1 052	10		
			356		329		900		1 052			898 899
46	0	0.679 0143		0.734 1250		0.924 9301		1.081 1628		0	14	
	10	0499	356	0921	329	0.925 0200	899	.081 0576	1 052	50		1 89 8 89 9
	20	0855	356	0592	329	1100	900	.080 9525	1 051	40		2 179 6 179 8
	30	1211	356	0263	329	2000	900	.080 8474	1 051	30		3 269 4 269 7
	40	1567	356	0.733 9933	330	2900	900	.080 7423	1 051	20		4 359 2 359 6
	50	1923	355	9604	329	3800	900	.080 6372	1 051	10		5 449 0 449 5
												6 538 8 539 4
47	0	0.679 2278		0.733 9275		0.925 4700		1.080 5321		0	13	
	10	2634	356	8945	330	5600	900	.080 4270	1 051	50		7 628 6 629 3
	20	2990	356	8616	329	6500	900	.080 3219	1 050	40		8 718 4 719 2
	30	3346	356	8287	329	7400	901	.080 2169	1 051	30		9 808 2 809 1
	40	3702	356	7957	330	8301	900	.080 1118	1 050	20		
	50	4057	355	7628	329	9201	901	.080 0068	1 050	10		
												900 901 902
48	0	0.679 4413		0.733 7299		0.926 0102		1.079 9018		0	12	
	10	4769	356	6969	330	1002	900	.079 7968	1 050	50		1 90 0 90 1 90 2
	20	5124	355	6640	329	1903	901	.079 6917	1 051	40		2 180 0 180 2 180 4
	30	5480	356	6310	330	2804	901	.079 5868	1 049	30		3 270 0 270 3 270 6
	40	5836	355	5981	329	3704	900	.079 4818	1 050	20		4 360 0 360 4 360 8
	50	6191	356	5651	330	4605	901	.079 3768	1 050	10		5 450 0 450 5 451 0
												6 540 0 540 6 541 2
49	0	0.679 6547		0.733 5322		0.926 5506		1.079 2718		0	11	
	10	6903	356	4902	330	6407	901	.079 1669	1 049	50		7 630 0 630 7 631 4
	20	7258	355	4663	329	7308	902	.079 0620	1 050	40		8 720 0 720 8 721 6
	30	7614	355	4333	329	8210	901	.078 9570	1 049	30		9 810 0 810 9 811 8
	40	7969	355	4004	330	9111	901	.078 8521	1 049	20		
	50	8325	356	3674	330	0.927 0012	902	.078 7472	1 049	10		
			356		329							Cotangent
50	0	0.679 8681		0.733 3345		0.927 0914		1.078 6423		0	10	
												1060 1050
												1 106 0 105 0
												2 212 0 210 0
												3 318 0 315 0
												4 424 0 420 0
												5 530 0 525 0
												6 636 0 630 0
												7 742 0 735 0
												8 848 0 840 0
												9 954 0 945 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff			Proportional Parts

47° 10'

42° 50'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
50	0	0.679 8681		0.733 3345		0.927 0914		1.078 6423		0	10	
	10	9036	355	3015	330	1815	901	.078 5374	1 049	50		Sine
	20	9392	356	2685	330	2717	902	.078 4326	1 048	40		354 355 356
	30	9747	355	2356	329	3619	902	.078 3277	1 049	30		1 35 1 35 5 35 6
	40	0 680 0103	356	2026	330	4521	902	.078 2229	1 048	20		2 70 8 71 0 71 2
	50	0458	355	1696	329	5422	901	.078 1180	1 049	10		3 106 2 106 5 106 8
			355				902		1 048			4 141 6 142 0 142 4
51	0	0 680 0813		0.733 1367		0.927 6324		1.078 0132		0	9	
	10	1169	356	1037	330	7226	902	.077 9084	1 048	50		5 177 0 177 5 178 0
	20	1524	355	0707	330	8129	903	.077 8036	1 048	40		6 212 4 213 0 213 6
	30	1880	356	0377	330	9031	902	.077 6988	1 048	30		7 247 8 248 5 249 2
	40	2235	355	0048	329	9933	902	.077 5940	1 048	20		8 283 2 284 0 284 8
	50	2590	355	0.732 9718	330	0 928 0835	902	.077 4892	1 048	10		9 318 6 319 5 320 4
			356				903		1 047			
52	0	0 680 2946		0.732 9388		0 928 1738		1 077 3845		0	8	
	10	3301	355	9058	330	2640	902	.077 2797	1 048	50		Cosine
	20	3656	355	8728	330	3543	903	.077 1750	1 047	40		329 330 331
	30	4012	356	8398	330	4446	903	.077 0702	1 047	30		1 32 9 33 0 33 1
	40	4367	355	8069	329	5348	902	.076 9655	1 047	20		2 65 8 66 0 66 2
	50	4722	355	7739	330	6251	903	.076 8608	1 047	10		3 98 7 99 0 99 3
			356				903		1 047			4 131 6 132 0 132 4
53	0	0.680 5078		0.732 7409		0.928 7154		1.076 7561		0	7	
	10	5433	355	7079	330	8057	903	.076 6514	1 047	50		5 164 5 165 0 165 5
	20	5788	355	6749	330	8960	903	.076 5468	1 046	40		6 197 4 198 0 198 6
	30	6143	355	6419	330	9863	903	.076 4421	1 047	30		7 230 3 231 0 231 7
	40	6498	355	6089	330	0.929 0767	904	.076 3374	1 047	20		8 263 2 264 0 264 8
	50	6854	356	5759	330	1670	903	.076 2328	1 046	10		9 296 1 297 0 297 9
			355						1 046			
54	0	0.680 7209		0.732 5429		0.929 2573		1.076 1282		0	6	
	10	7564	355	5099	330	3477	904	.076 0235	1 047	50		Tangent
	20	7919	355	4769	330	4381	904	.075 9189	1 046	40		901 902
	30	8274	355	4439	330	5284	903	.075 8143	1 046	30		1 90 1 90 2
	40	8629	355	4109	330	6188	904	.075 7097	1 046	20		2 180 2 180 4
	50	8984	355	3779	330	7092	904	.075 6052	1 045	10		3 270 3 270 6
			355				904		1 046			4 360 4 360 8
55	0	0.680 9339		0.732 3449		0 929 7996		1.075 5006		0	5	
	10	9694	355	3118	331	8900	904	.075 3961	1 045	50		5 450 5 451 0
	20	0 681 0049	355	2788	330	9804	904	.075 2915	1 046	40		6 540 6 541 2
	30	0404	355	2458	330	0.930 0708	904	.075 1870	1 045	30		7 630 7 631 4
	40	0759	355	2128	330	1612	904	.075 0825	1 045	20		8 720 8 721 6
	50	1114	355	1798	330	2516	904	.074 9779	1 045	10		9 810 9 811 8
			355		331		905		1 045			903 904
56	0	0 681 1469		0.732 1467		0.930 3421		1 074 8734		0	4	
	10	1824	355	1137	330	4325	904	.074 7690	1 044	50		1 90 3 90 4
	20	2179	355	0807	330	5230	905	.074 6645	1 045	40		2 180 6 180 8
	30	2534	355	0477	330	6135	905	.074 5600	1 045	30		3 270 9 271 2
	40	2889	355	0146	331	7039	904	.074 4556	1 044	20		4 361 2 361 6
	50	3244	355	0 731 9816	330	7944	905	.074 3511	1 045	10		5 451 5 452 0
			355				905		1 044			6 541 8 542 4
57	0	0.681 3599		0.731 9486		0 930 8849		1.074 2467		0	3	
	10	3954	354	9155	331	9754	905	.074 1423	1 044	50		7 632 1 632 8
	20	4308	354	8825	330	0 931 0659	905	.074 0378	1 045	40		8 722 4 723 2
	30	4663	355	8495	330	1564	905	.073 9334	1 044	30		9 812 7 813 6
	40	5018	355	8164	331	2469	906	.073 8290	1 044	20		905 906 907
	50	5373	355	7834	331	3375	905	.073 7247	1 043	10		1 90 5 90 6 90 7
									1 044			2 181 0 181 2 181 4
58	0	0.681 5728		0.731 7503		0 931 4280		1.073 6203		0	2	
	10	6082	354	7173	330	5185	905	.073 5159	1 044	50		3 271 5 271 8 272 1
	20	6437	355	6843	331	6091	906	.073 4116	1 043	40		4 362 0 362 4 362 8
	30	6792	355	6512	330	6997	906	.073 3073	1 043	30		5 452 5 453 0 453 5
	40	7147	355	6182	330	7902	905	.073 2029	1 044	20		6 543 0 543 6 544 2
	50	7501	354	5851	331	8808	906	.073 0986	1 043	10		7 633 5 634 2 634 9
			355						1 043			8 724 0 724 8 725 6
59	0	0.681 7856		0.731 5521		0.931 9714		1.072 9943		0	1	
	10	8211	355	5190	331	0.932 0620	906	.072 8900	1 043	50		9 814 5 815 4 816 3
	20	8565	354	4859	331	1526	906	.072 7857	1 043	40		Cotangent
	30	8920	355	4529	330	2432	906	.072 6815	1 042	30		1050 1040
	40	9274	354	4198	330	3338	906	.072 5772	1 043	20		1 105 0 104 0
	50	9629	355	3868	331	4245	907	.072 4729	1 043	10		2 210 0 208 0
							906		1 042			3 315 0 312 0
60	0	0.681 9984		0.731 3537		0.932 5151		1.072 3687		0	0	
												4 420 0 416 0
												5 525 0 520 0
												6 630 0 624 0
												7 735 0 728 0
												8 840 0 832 0
												9 945 0 936 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	"	Proportional Parts

47° 0'

43° 0'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
0	0	0.681 9984		0.731 3637		0.932 6151		1.072 3687		0	60	Sine
	10	0.682 0338	354	3206	331	6057	906	.072 2645	1 042	50		353 354 355
	20	0693	354	2876	331	6964	906	.072 1603	1 042	40		1 35 3 35 4 35 5
	30	1047	355	2545	331	7870	907	.072 0561	1 042	30		2 70 6 70 8 71 0
	40	1402	354	2214	330	8777	907	.071 9519	1 042	20		3 105 9 106 2 106 5
	50	1756	355	1884	331	9684	907	.071 8477	1 042	10		4 141 2 141 6 142 0
1	0	0.682 2111	354	0.731 1553	331	0.933 0591	907	1.071 7435	1 042	0	59	5 176 5 177 0 177 5
	10	2465	355	1222	331	1498	907	.071 6393	1 041	50		6 211 8 212 4 213 0
	20	2820	354	0891	330	2405	907	.071 5352	1 042	40		7 247 1 247 8 248 5
	30	3174	355	0561	331	3312	907	.071 4310	1 041	30		8 282 4 283 2 284 0
	40	3529	354	0230	331	4219	907	.071 3269	1 041	20		9 317 7 318 6 319 5
	50	3883	354	0.730 9899	331	5126	908	.071 2228	1 041	10		
2	0	0.682 4237	355	0.730 9568	331	0.933 6034	907	1.071 1187	1 041	0	58	Cosine
	10	4592	354	9237	331	6941	908	.071 0146	1 041	50		330 331 332
	20	4946	354	8906	331	7849	907	.070 9105	1 041	40		1 33 0 33 1 33 2
	30	5300	355	8575	330	8756	908	.070 8064	1 040	30		2 66 0 66 2 66 4
	40	5655	354	8245	331	9664	908	.070 7024	1 041	20		3 99 0 99 3 99 6
	50	6009	354	7914	331	0.934 0572	907	.070 5983	1 040	10		4 132 0 132 4 132 8
3	0	0.682 6363	355	0.730 7583	331	0.934 1479	908	1.070 4943	1 041	0	57	5 165 0 165 5 166 0
	10	6718	354	7252	331	2387	908	.070 3902	1 040	50		6 198 0 198 6 199 2
	20	7072	354	6921	331	3295	908	.070 2862	1 040	40		7 231 0 231 7 232 4
	30	7426	354	6590	331	4203	908	.070 1822	1 040	30		8 264 0 264 8 265 6
	40	7780	354	6259	331	5112	909	.070 0782	1 040	20		9 297 0 297 9 298 8
	50	8134	355	5928	331	6020	908	.069 9742	1 040	10		
4	0	0.682 8489	354	0.730 5597	331	0.934 6928	909	1.069 8702	1 040	0	56	Tangent
	10	8843	354	5266	331	7837	908	.069 7662	1 039	50		906 907
	20	9197	354	4935	332	8745	909	.069 6623	1 040	40		1 90 6 90 7
	30	9551	354	4603	331	9654	908	.069 5583	1 039	30		2 181 2 181 4
	40	9905	354	4272	331	0.935 0562	909	.069 4544	1 039	20		3 271 8 272 1
	50	0.683 0259	354	3941	331	1471	909	.069 3505	1 039	10		4 362 4 362 8
5	0	0.683 0613	355	0.730 3610	331	0.935 2380	909	1.069 2466	1 039	0	55	5 453 0 453 5
	10	0968	354	3279	331	3289	909	.069 1427	1 039	50		6 543 6 544 2
	20	1322	354	2948	332	4198	909	.069 0388	1 039	40		7 631 2 631 9
	30	1676	354	2616	331	5107	909	.068 9349	1 039	30		8 724 8 725 6
	40	2030	354	2285	331	6016	909	.068 8310	1 038	20		9 815 4 816 3
	50	2384	354	1954	331	6925	909	.068 7272	1 039	10		
6	0	0.683 2738	354	0.730 1623	332	0.935 7834	910	1.068 6233	1 038	0	54	908 909
	10	3092	354	1291	331	8744	909	.068 5195	1 038	50		1 90 8 90 9
	20	3446	354	0960	331	9653	910	.068 4156	1 038	40		2 181 6 181 8
	30	3800	354	0629	331	0.936 0563	910	.068 3118	1 038	30		3 272 4 272 7
	40	4154	353	0298	332	1473	909	.068 2080	1 038	20		4 363 2 363 6
	50	4507	354	0.729 9966	331	2382	910	.068 1042	1 038	10		5 454 0 454 5
7	0	0.683 4861	354	0.729 9635	331	0.936 3292	910	1.068 0004	1 037	0	53	6 544 8 545 4
	10	5215	354	9304	332	4202	910	.067 8967	1 038	50		7 635 6 636 3
	20	5569	354	8972	331	5112	910	.067 7929	1 038	40		8 726 4 727 2
	30	5923	354	8641	332	6022	910	.067 6891	1 037	30		9 817 2 818 1
	40	6277	354	8309	332	6932	910	.067 5854	1 037	20		
	50	6631	353	7978	332	7842	911	.067 4817	1 038	10		
8	0	0.683 6984	354	0.729 7646	331	0.936 8753	910	1.067 3779	1 037	0	52	Cotangent
	10	7338	354	7315	332	9663	911	.067 2742	1 037	50		1040 1030
	20	7692	354	6983	331	0.937 0574	910	.067 1705	1 037	40		1 104 0 103 0
	30	8046	354	6652	332	1484	911	.067 0668	1 037	30		2 208 0 206 0
	40	8400	353	6320	331	2395	911	.066 9632	1 037	20		3 312 0 309 0
	50	8753	354	5989	332	3306	910	.066 8595	1 037	10		4 416 0 412 0
9	0	0.683 9107	354	0.729 5657	331	0.937 4216	911	1.066 7558	1 036	0	51	5 520 0 515 0
	10	9461	353	5326	332	5127	911	.066 6522	1 036	50		6 624 0 618 0
	20	9814	354	4994	331	6038	911	.066 5486	1 037	40		7 728 0 721 0
	30	0.684 0168	354	4663	332	6949	911	.066 4449	1 036	30		8 832 0 824 0
	40	0522	353	4331	332	7860	912	.066 3413	1 036	20		9 936 0 927 0
	50	0875	354	3999	331	8772	911	.066 2377	1 036	10		
10	0	0.684 1229		0.729 3668		0.937 9683		1.066 1341		0	50	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff			Proportional Parts

46° 50'

43° 10'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
10	0	0.684 1229		0.729 3668		0.937 9683		1.066 1341		0	50	
	10	1583	354	3336	332	0.938 0594	911	0.66 0305	1.036	50		
	20	1936	353	3004	332	1506	912	.065 9270	1.035	40		
	30	2290	354	2672	332	2417	911	.065 8234	1.036	30		
	40	2643	353	2341	331	3329	912	.065 7199	1.035	20		
	50	2997	354	2009	332	4241	912	.065 6163	1.036	10		
			353		332				1.035			
11	0	0.684 3350		0.729 1677		0.938 5153		1.065 5128		0	49	Sine
	10	3704	354	1345	332	6064	911	.065 4093	1.035	50		352 353 354
	20	4057	353	1014	331	6976	912	.065 3058	1.035	40		1 35 2 35 3 35 4
	30	4411	354	0682	332	7888	912	.065 2023	1.035	30		2 70 4 70 6 70 8
	40	4764	353	0350	332	8801	913	.065 0988	1.035	20		3 105 6 105 9 106 2
	50	5118	354	0018	332	9713	912	.064 9953	1.035	10		4 140 8 141 2 141 6
			353		332				1.035			5 176 0 176 5 177 0
12	0	0.684 5471		0.728 9686		0.939 0625		1.064 8918		0	48	6 211 2 211 8 212 4
	10	5824	353	9354	332	1537	912	.064 7884	1.034	50		7 246 4 247 1 247 8
	20	6178	354	9022	332	2450	913	.064 6849	1.035	40		8 281 6 282 4 283 2
	30	6531	353	8691	331	3362	912	.064 5815	1.034	30		9 316 8 317 7 318 6
	40	6885	354	8359	332	4275	913	.064 4781	1.034	20		
	50	7238	353	8027	332	5188	913	.064 3747	1.034	10		
			353		332				1.034			Cosine
13	0	0.684 7591		0.728 7695		0.939 6101		1.064 2713		0	47	331 332 333
	10	7945	354	7363	332	7013	912	.064 1679	1.034	50		1 33 1 33 2 33 3
	20	8298	353	7031	332	7926	913	.064 0645	1.034	40		2 66 2 66 4 66 6
	30	8651	353	6699	332	8839	913	.063 9611	1.034	30		3 99 3 99 6 99 9
	40	9004	353	6367	332	9753	914	.063 8578	1.033	20		4 132 4 132 8 133 2
	50	9358	354	6035	332	0.940 0666	913	.063 7544	1.034	10		5 165 5 166 0 166 5
			353		332				1.033			6 198 6 199 2 199 8
14	0	0.684 9711		0.728 5703		0.940 1579		1.063 6511		0	46	7 231 7 232 4 233 1
	10	0.685 0064	353	5370	333	2493	914	.063 5478	1.033	50		8 264 8 265 6 266 4
	20	0417	353	5038	332	3406	913	.063 4445	1.033	40		9 297 9 298 8 299 7
	30	0770	353	4706	332	4320	914	.063 3412	1.033	30		
	40	1124	354	4374	332	5233	913	.063 2379	1.033	20		Tangent
	50	1477	353	4042	332	6147	914	.063 1346	1.033	10		911 912 913
			353		332				1.033			1 91 1 91 2 91 3
15	0	0.685 1830		0.728 3710		0.940 7061		1.063 0313		0	45	2 182 2 182 4 182 6
	10	2183	353	3378	332	7975	914	.062 9280	1.033	50		3 273 3 273 6 273 9
	20	2536	353	3045	333	8889	914	.062 8248	1.032	40		4 364 4 364 8 365 2
	30	2889	353	2713	332	9803	914	.062 7216	1.032	30		5 455 5 456 0 456 5
	40	3242	353	2381	332	0.941 0717	914	.062 6183	1.032	20		6 546 6 547 2 547 8
	50	3595	353	2049	333	1631	914	.062 5151	1.032	10		7 637 7 638 4 639 1
			353		333				1.032			8 728 8 729 6 730 4
16	0	0.685 3948		0.728 1716		0.941 2545		1.062 4119		0	44	9 819 9 820 8 821 7
	10	4301	353	1384	332	3460	915	.062 3087	1.032	50		914 915 916
	20	4654	353	1052	332	4374	914	.062 2055	1.032	40		1 91 4 91 5 91 6
	30	5007	353	0719	333	5289	915	.062 1023	1.032	30		2 182 8 183 0 183 2
	40	5360	353	0387	332	6203	915	.061 9992	1.031	20		3 274 2 274 5 274 8
	50	5713	353	0055	333	7118	915	.061 8960	1.032	10		4 365 6 366 0 366 4
			353		333				1.031			5 457 0 457 5 458 0
17	0	0.685 6066		0.727 9722		0.941 8033		1.061 7929		0	43	6 548 4 549 0 549 6
	10	6419	353	9390	332	8948	915	.061 6897	1.032	50		7 639 8 640 5 641 2
	20	6772	353	9057	332	9863	915	.061 5866	1.031	40		8 731 2 732 0 732 8
	30	7125	353	8725	332	0.942 0778	915	.061 4835	1.031	30		9 822 6 823 5 824 4
	40	7478	353	8393	332	1693	915	.061 3804	1.031	20		
	50	7831	353	8060	332	2608	915	.061 2773	1.031	10		Cotangent
			353		332				1.031			1040 1030
18	0	0.685 8184		0.727 7728		0.942 3523		1.061 1742		0	42	1 104 0 103 0
	10	8536	352	7395	333	4439	916	.061 0712	1.030	50		2 208 0 206 0
	20	8889	353	7063	332	5354	915	.060 9681	1.031	40		3 312 0 309 0
	30	9242	353	6730	333	6270	916	.060 8650	1.031	30		4 416 0 412 0
	40	9595	352	6397	333	7185	915	.060 7620	1.030	20		5 520 0 515 0
	50	9947	353	6065	333	8101	916	.060 6590	1.030	10		6 624 0 618 0
			353		333				1.030			7 728 0 721 0
19	0	0.686 0300		0.727 5732		0.942 9017		1.060 5560		0	41	8 832 0 824 0
	10	0653	353	5400	332	9933	916	.060 4530	1.030	50		9 936 0 927 0
	20	1006	353	5067	333	0.943 0849	916	.060 3500	1.030	40		
	30	1358	352	4734	333	1765	916	.060 2470	1.030	30		
	40	1711	353	4402	332	2681	916	.060 1440	1.030	20		
	50	2064	352	4069	333	3597	916	.060 0410	1.029	10		
20	0	0.686 2416		0.727 3736		0.943 4513		1.059 9381		0	40	
												Proportional Parts
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff.	"	'	

46° 40'

43° 20'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
20	0	0.686 2416		0.727 3736		0.943 4513		1.059 9381		0	40	
	10	2769	353	3404	332	5430	917	.059 8351	1 030	50		Sine
	20	3122	353	3071	333	6346	916	.059 7322	1 029	40		351 352 353
	30	3474	352	2738	333	7263	917	.059 6293	1 029	30		1 35 1 35 2 35 3
	40	3827	353	2405	333	8179	916	.059 5264	1 029	20		2 70 2 70 4 70 6
	50	4179	352	2073	332	9096	917	.059 4235	1 029	10		3 105 3 105 6 105 9
			353		333		917		1 029			4 140 4 140 8 141 2
21	0	0.686 4532		0.727 1740		0.944 0013		1.059 3206		0	39	
	10	4884	352	1407	333	0930	917	.059 2177	1 029	50		5 175 5 176 0 176 5
	20	5237	353	1074	333	1847	917	.059 1148	1 029	40		6 210 6 211 2 211 8
	30	5589	352	0741	333	2764	917	.059 0120	1 028	30		7 245 7 246 4 247 1
	40	5942	353	0409	332	3681	917	.058 9091	1 029	20		8 280 8 281 6 282 4
	50	6294	352	0076	333	4598	917	.058 8063	1 028	10		9 315 9 316 8 317 7
			353		333		918		1 028			
22	0	0.686 6647		0.726 9743		0.944 5516		1.058 7035		0	38	
	10	6999	352	9410	333	6433	917	.058 6006	1 029	50		Cosine
	20	7352	353	9077	333	7350	917	.058 4978	1 028	40		332 333 334
	30	7704	352	8744	333	8268	918	.058 3950	1 028	30		1 33 2 33 3 33 4
	40	8057	353	8411	333	9186	918	.058 2923	1 027	20		2 66 4 66 6 66 9
	50	8409	352	8078	333	0.945 0103	917	.058 1895	1 028	10		3 99 6 99 9 100 2
			352		333		918		1 028			4 132 8 133 2 133 6
23	0	0.686 8761		0.726 7745		0.945 1021		1.058 0867		0	37	
	10	9114	353	7412	333	1939	918	.057 9840	1 027	50		5 166 0 166 5 167 0
	20	9466	352	7079	333	2857	918	.057 8812	1 028	40		6 199 2 199 8 200 4
	30	9818	352	6746	333	3775	918	.057 7785	1 027	30		7 232 4 233 1 233 8
	40	0 687 0171	353	6413	333	4693	918	.057 6758	1 027	20		8 265 6 266 4 267 2
	50	0523	352	6080	333	5612	919	.057 5731	1 027	10		9 298 8 299 7 300 6
			352		333		918		1 027			
24	0	0 687 0875		0.726 5747		0.945 6530		1.057 4704		0	36	
	10	1227	352	5414	333	7448	918	.057 3677	1 027	50		Tangent
	20	1580	353	5080	334	8367	919	.057 2650	1 027	40		916 917
	30	1932	352	4747	333	9285	918	.057 1623	1 027	30		1 91 6 91 7
	40	2284	352	4414	333	0.946 0204	919	.057 0597	1 026	20		2 183 2 183 4
	50	2636	352	4081	333	1123	919	.056 9570	1 026	10		3 274 8 275 1
			352		333		919		1 026			4 366 4 366 8
25	0	0.687 2988		0.726 3748		0.946 2042		1.056 8544		0	35	
	10	3340	352	3415	333	2961	919	.056 7517	1 027	50		5 158 0 158 5
	20	3693	353	3081	334	3880	919	.056 6491	1 026	40		6 519 6 520 2
	30	4045	352	2748	333	4799	919	.056 5465	1 026	30		7 641 2 641 9
	40	4397	352	2415	333	5718	919	.056 4439	1 026	20		8 733 8 733 6
	50	4749	352	2081	334	6637	919	.056 3413	1 025	10		9 824 4 825 3
			352		333		919		1 025			
26	0	0.687 5101		0.726 1748		0.946 7556		1.056 2388		0	34	
	10	5453	352	1415	333	8476	920	.056 1362	1 026	50		918 919
	20	5805	352	1082	334	9395	919	.056 0336	1 026	40		1 91 8 91 9
	30	6157	352	0748	333	0.947 0315	920	.055 9311	1 025	30		2 181 6 183 8
	40	6509	352	0415	333	1235	920	.055 8286	1 025	20		3 275 4 275 7
	50	6861	352	0081	334	2154	919	.055 7260	1 025	10		4 367 2 367 6
			352		333		920		1 025			5 459 0 459 5
27	0	0.687 7213		0.725 9748		0.947 3074		1.055 6235		0	33	
	10	7565	352	9415	333	3994	920	.055 5210	1 025	50		6 550 8 551 4
	20	7917	352	9081	334	4914	920	.055 4185	1 025	40		7 642 6 643 3
	30	8269	352	8748	333	5834	920	.055 3161	1 024	30		8 734 4 735 2
	40	8621	352	8414	334	6754	921	.055 2136	1 025	20		9 826 2 827 1
	50	8973	352	8081	333	7675	920	.055 1111	1 024	10		
			352		334		920		1 024			
28	0	0 687 9325		0.725 7747		0.947 8595		1.055 0087		0	32	
	10	9676	351	7414	333	9515	920	.054 9063	1 024	50		920 921 922
	20	0 688 0028	352	7080	334	0.948 0436	921	.054 8038	1 025	40		1 92 0 92 1 92 2
	30	0380	352	6747	333	1356	920	.054 7014	1 024	30		2 184 0 184 2 184 4
	40	0732	352	6413	334	2277	921	.054 5990	1 024	20		3 276 0 276 3 276 6
	50	1084	351	6079	333	3198	921	.054 4966	1 024	10		4 368 0 368 4 368 8
			351		333		921		1 024			5 460 0 460 5 461 0
29	0	0.688 1435		0.725 5746		0.948 4119		1.054 3942		0	31	
	10	1787	352	5412	334	5040	921	.054 2918	1 024	50		6 552 0 552 6 553 2
	20	2139	352	5078	333	5961	921	.054 1895	1 023	40		7 644 0 644 7 645 4
	30	2491	351	4745	334	6882	921	.054 0871	1 023	30		8 736 0 736 8 737 6
	40	2842	352	4411	334	7803	921	.053 9848	1 024	20		9 828 0 828 9 829 8
	50	3194	352	4077	333	8724	922	.053 8824	1 023	10		
			352		333		922		1 023			
30	0	0.688 3546		0.725 3744		0.948 9646		1.053 7801		0	30	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff			Proportional Parts

46° 30'

43° 30'

	"	Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff.			Proportional Parts
30	0	0.688 3546		0.725 3744		0.948 9646		1.053 7801		0	30	
	10	3897	351	3410	334	0.949 0567	921	053 6778	1 023	50		
	20	4249	352	3076	334	1489	922	053 5755	1 023	40		
	30	4601	352	2742	334	2410	921	.053 4732	1 023	30		
	40	4952	351	2409	333	3332	922	053 3709	1 023	20		
	50	5304	352	2075	334	4254	922	.053 2687	1 022	10		
			351		334		922		1 023			
31	0	0 688 6655		0.725 1741		0.949 5176		1.053 1664		0	29	Sine
	10	6007	352	1407	334	6098	922	.053 0642	1 022	50		350 351 353
	20	6359	352	1073	334	7020	922	.052 9619	1 023	40		1 35 0 35 1 35 2
	30	6710	351	0740	333	7942	922	.052 8597	1 023	30		2 70 0 70 2 70 4
	40	7062	352	0406	334	8864	922	052 7575	1 022	20		3 105 0 105 3 105 6
	50	7413	352	0072	334	9786	922	.052 6553	1 022	10		4 140 0 140 4 140 8
			351		334		923		1 022			5 175 0 175 5 176 0
32	0	0.688 7765		0.724 9738		0.950 0709		1.052 5531		0	28	
	10	8116	351	9404	334	1631	922	052 4509	1 022	50		6 210 0 210 6 211 2
	20	8468	352	9070	334	2554	923	052 3487	1 022	40		7 245 0 245 7 246 4
	30	8819	351	8736	334	3476	922	052 2465	1 021	30		8 280 0 280 8 281 6
	40	9170	351	8402	334	4399	923	.052 1444	1 021	20		9 315 0 315 9 316 8
	50	9522	352	8068	334	5322	923	052 0422	1 021	10		
			351		334				1 021			Cosine
33	0	0 688 9873		0.724 7734		0.950 6245		1.051 9401		0	27	333 334 335
	10	0 689 0225	352	7400	334	7168	923	.051 8380	1 021	50		1 33 3 33 4 33 5
	20	0576	351	7066	334	8091	923	.051 7359	1 021	40		2 66 6 66 8 67 0
	30	0927	352	6732	334	9014	923	.051 6338	1 021	30		3 99 9 100 2 100 5
	40	1279	351	6398	334	9937	923	.051 5317	1 021	20		4 133 2 133 6 131 0
	50	1630	351	6064	335	0 951 0860	924	.051 4296	1 021	10		5 166 5 167 0 167 5
			351						1 021			6 199 8 200 4 201 0
34	0	0.689 1981		0.724 5729		0.951 1784		1.051 3275		0	26	
	10	2332	352	5395	334	2707	923	.051 2254	1 021	50		7 233 1 233 8 234 5
	20	2684	351	5061	334	3631	924	051 1234	1 020	40		8 266 4 267 2 268 0
	30	3035	351	4727	334	4555	923	051 0214	1 020	30		9 299 7 300 6 301 5
	40	3386	351	4393	334	5478	923	.050 9193	1 021	20		
	50	3737	352	4059	335	6402	924	.050 8173	1 020	10		Tangent
									1 020			921 922 923
35	0	0 689 4089		0.724 3724		0.951 7326		1.050 7153		0	25	1 92 1 92 2 92 3
	10	4440	351	3390	334	8250	924	050 6133	1 020	50		2 184 2 184 4 184 6
	20	4791	351	3056	334	9174	924	.050 5113	1 020	40		3 276 3 276 6 276 9
	30	5142	351	2722	334	0 952 0098	925	050 4093	1 020	30		4 368 4 368 8 369 2
	40	5493	351	2387	335	1023	925	.050 3074	1 019	20		5 460 5 461 0 461 5
	50	5844	351	2053	334	1947	924	050 2054	1 020	10		6 552 6 553 2 553 8
			351						1 020			7 644 7 645 4 646 1
36	0	0.689 6195		0.724 1719		0.952 2871		1.050 1034		0	24	8 736 8 737 6 738 4
	10	6547	352	1384	335	3796	925	.050 0015	1 019	50		9 828 9 829 8 830 7
	20	6898	351	1050	334	4720	924	.049 8996	1 019	40		924 925 926
	30	7249	351	0716	334	5645	925	.049 7977	1 019	30		1 92 4 92 5 92 6
	40	7600	351	0381	335	6570	925	049 6958	1 019	20		2 184 8 185 0 185 2
	50	7951	351	0047	335	7495	925	.049 5939	1 019	10		3 277 2 277 5 277 8
			351						1 019			4 369 6 370 0 370 4
37	0	0 689 8302		0.723 9712		0.952 8420		1.049 4920		0	23	5 462 0 462 5 463 0
	10	8653	351	9378	334	9345	925	.049 3901	1 019	50		6 554 4 555 0 555 6
	20	9004	351	9043	334	0 953 0270	925	049 2882	1 018	40		7 646 8 647 5 648 2
	30	9355	351	8709	334	1195	925	.049 1864	1 018	30		8 739 2 740 0 740 8
	40	9706	351	8374	335	2120	925	.049 0845	1 018	20		9 831 6 832 5 833 4
	50	0 690 0056	350	8040	334	3046	926	.048 9827	1 018	10		Cotangent
			351		335		925		1 018			1020 1010
38	0	0.690 0407		0.723 7705		0.953 3971		1.048 8809		0	22	1 102 0 101 0
	10	0758	351	7371	334	4897	926	.048 7791	1 018	50		2 204 0 202 0
	20	1109	351	7036	335	5822	925	.048 6773	1 018	40		3 306 0 303 0
	30	1460	351	6702	334	6748	926	.048 5755	1 018	30		4 408 0 404 0
	40	1811	351	6367	335	7674	926	.048 4737	1 018	20		5 510 0 505 0
	50	2162	350	6032	334	8600	926	.048 3719	1 017	10		6 612 0 606 0
			351						1 017			7 714 0 707 0
39	0	0.690 2512		0.723 5698		0.953 9526		1.048 2702		0	21	8 816 0 808 0
	10	2863	351	5363	335	0 954 0452	926	.048 1684	1 018	50		9 918 0 909 0
	20	3214	351	5028	334	1378	926	.048 0667	1 017	40		
	30	3565	350	4694	335	2304	926	.047 9649	1 017	30		
	40	3915	351	4359	335	3230	927	.047 8632	1 017	20		
	50	4266	351	4024	334	4157	926	.047 7615	1 017	10		
40	0	0.690 4617		0.723 3690		0.954 5083		1.047 6598		0	20	
												Proportional Parts
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff	"	"	

46° 20'

43° 40'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
40	0	0.690 4617		0.723 3690		0.954 5083		1.047 6598		0	20	
	10	4968	351	3355	335	6010	927	.047 5581	1 017	50		Sine
	20	5318	351	3020	335	6936	927	.047 4564	1 016	40		349 350 351
	30	5669	351	2685	335	7863	927	.047 3548	1 016	30		1 31 9 35 0 35 1
	40	6020	351	2351	334	8790	927	.047 2531	1 017	20		2 69 8 70 0 70 2
	50	6370	351	2016	335	9717	927	.047 1515	1 016	10		3 104 7 105 0 105 3
					335				1 017			4 139 6 140 0 140 4
41	0	0.690 6721		0.723 1681		0.955 0644		1.047 0498		0	19	
	10	7071	350	1346	335	1571	927	.046 9482	1 016	50		5 171 5 175 0 175 5
	20	7422	351	1011	335	2498	927	.046 8466	1 016	40		6 209 4 210 5 210 6
	30	7773	351	0676	335	3425	927	.046 7450	1 016	30		7 244 3 245 0 245 7
	40	8123	351	0341	335	4353	927	.046 6434	1 016	20		8 279 2 280 0 280 8
	50	8474	351	0006	335	5280	927	.046 5418	1 016	10		9 314 1 315 0 315 9
			350				928		1 016			
42	0	0.690 8824		0.722 9671		0.955 6208		1.046 4402		0	18	
	10	9175	351	9337	334	7135	927	.046 3387	1 015	50		Cosine
	20	9525	351	9002	335	8063	928	.046 2371	1 016	40		334 335 336
	30	9876	350	8667	335	8991	927	.046 1356	1 016	30		1 33 4 33 5 33 6
	40	0.691 0226	350	8332	335	9918	927	.046 0340	1 016	20		2 66 8 67 0 67 2
	50	0576	351	7997	336	0 956 0846	928	.045 9325	1 015	10		3 100 2 100 5 100 8
									1 015			4 133 6 134 0 134 4
43	0	0.691 0927		0.722 7661		0.956 1774		1.045 8310		0	17	
	10	1277	350	7326	335	2703	929	.045 7295	1 015	50		5 167 0 167 5 168 0
	20	1628	351	6991	335	3631	928	.045 6280	1 015	40		6 200 4 201 0 201 6
	30	1978	350	6656	335	4559	928	.045 5265	1 015	30		7 233 8 234 5 235 2
	40	2328	350	6321	335	5487	928	.045 4250	1 015	20		8 267 2 268 0 268 8
	50	2679	351	5986	335	6416	929	.045 3236	1 014	10		9 300 6 301 5 302 4
			350				928		1 015			
44	0	0.691 3029		0.722 5651		0.956 7344		1.045 2221		0	16	
	10	3379	350	5316	335	8273	929	.045 1207	1 014	50		Tangent
	20	3730	351	4981	335	9202	929	.045 0193	1 014	40		926 927
	30	4080	350	4645	336	0 957 0131	929	.044 9178	1 015	30		1 185 2 185 4
	40	4430	350	4310	335	1059	928	.044 8164	1 014	20		2 277 8 278 1
	50	4780	351	3975	335	1988	929	.044 7150	1 014	10		3 370 4 370 8
									1 014			4 463 0 463 5
45	0	0.691 5131		0.722 3640		0.957 2917		1.044 6136		0	15	
	10	5481	350	3304	336	3847	930	.044 5122	1 014	50		5 553 6 556 2
	20	5831	350	2969	335	4776	929	.044 4109	1 013	40		6 648 2 648 9
	30	6181	350	2634	336	5705	930	.044 3095	1 013	30		7 740 8 741 6
	40	6531	350	2298	335	6635	929	.044 2082	1 014	20		8 833 4 834 3
	50	6881	351	1963	335	7564	930	.044 1068	1 013	10		9 928 8 929 9
									1 013			1 185 6 185 8
46	0	0.691 7232		0.722 1628		0.957 8494		1.044 0055		0	14	
	10	7582	350	1292	336	9423	929	.043 9042	1 013	50		2 278 4 278 7
	20	7932	350	0957	335	0 958 0353	930	.043 8029	1 013	40		3 371 2 371 6
	30	8282	350	0622	335	1283	930	.043 7016	1 013	30		4 464 0 464 5
	40	8632	350	0286	336	2213	930	.043 6003	1 013	20		5 556 8 557 4
	50	8982	350	0721 9951	336	3143	930	.043 4990	1 013	10		6 649 6 650 3
									1 013			7 742 4 743 2
47	0	0.691 9332		0.721 9615		0.958 4073		1.043 3977		0	13	
	10	9682	350	9280	335	5003	930	.043 2965	1 012	50		8 835 2 836 1
	20	0.692 0032	350	8944	336	5933	931	.043 1952	1 013	40		930 931 932
	30	0382	350	8609	335	6864	931	.043 0940	1 012	30		1 93 0 93 1 93 2
	40	0732	350	8273	336	7794	930	.042 9928	1 012	20		2 186 0 186 2
	50	1082	350	7938	336	8725	931	.042 8916	1 012	10		3 279 0 279 3
									1 012			4 372 0 372 4
48	0	0.692 1432		0.721 7602		0.958 9655		1.042 7904		0	12	
	10	1782	350	7267	335	0 959 0586	931	.042 6892	1 012	50		5 465 0 465 5
	20	2132	350	6931	336	1517	931	.042 5880	1 012	40		6 558 0 558 6
	30	2481	349	6596	335	2448	931	.042 4868	1 012	30		7 651 0 651 7
	40	2831	350	6260	336	3379	931	.042 3856	1 011	20		8 744 0 744 8
	50	3181	350	5924	335	4310	931	.042 2845	1 012	10		9 837 0 837 9
									1 012			1 102 0 101 0
49	0	0.692 3531		0.721 5589		0.959 5241		1.042 1833		0	11	
	10	3881	350	5253	336	6172	931	.042 0822	1 011	50		2 204 0 202 0
	20	4231	350	4917	335	7103	931	.041 9811	1 011	40		3 306 0 303 0
	30	4580	349	4582	336	8035	932	.041 8800	1 011	30		4 408 0 404 0
	40	4930	350	4246	336	8966	931	.041 7789	1 011	20		5 510 0 505 0
	50	5280	350	3910	336	9898	932	.041 6778	1 011	10		6 612 0 606 0
			350				931		1 011			7 714 0 707 0
50	0	0.692 5630		0.721 3574		0.960 0829		1.041 5767		0	10	
									1 011			8 816 0 808 0
									1 011			9 918 0 909 0
									1 011			
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff			Proportional Parts

46° 10'

43° 50'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
50	0	0.692 5630		0.721 3574		0.960 0829		1.041 5767		0	10	
	10	5979	349	3239	335	1761	932	.041 4756	1 011	50		
	20	6329	350	2903	336	2693	932	.041 3746	1 010	40		
	30	6679	350	2567	336	3625	932	.041 2735	1 011	30		
	40	7028	349	2231	336	4557	932	.041 1725	1 010	20		
	50	7378	350	1895	336	5489	932	.041 0714	1 011	10		
			350		336				1 010			
51	0	0 692 7728		0.721 1559		0.960 6421		1.040 9704		0	9	
	10	8077	349	1224	335	7353	932	.040 8694	1 010	50		Sine
	20	8427	350	0888	336	8286	933	.040 7684	1 010	40		348 349 350
	30	8776	349	0552	336	9218	932	.040 6674	1 010	30		1 34 8 34 9 35 0
	40	9126	350	0216	336	0.961 0151	932	.040 5664	1 010	20		2 09 6 69 8 70 0
	50	9476	349	0.720 9880	336	1083	933	.040 4654	1 011	10		3 104 4 104 7 105 0
									1 009			4 139 2 139 6 140 0
52	0	0 692 9825		0.720 9544		0.961 2016		1.040 3645		0	8	
	10	0.693 0175	350	9208	336	2949	933	.040 2635	1 010	50		5 174 0 174 5 175 0
	20	0524	349	8872	336	3882	933	.040 1626	1 009	40		6 208 8 209 4 210 0
	30	0874	350	8536	336	4815	933	.040 0617	1 009	30		7 243 6 244 3 245 0
	40	1223	349	8200	336	5748	933	.039 9607	1 010	20		8 278 4 279 2 280 0
	50	1573	350	7864	336	6681	933	.039 8598	1 009	10		9 313 2 314 1 315 0
			349		336				1 009			
53	0	0 693 1922		0.720 7528		0.961 7614		1.039 7589		0	7	
	10	2271	349	7192	336	8547	933	.039 6580	1 009	50		Cosine
	20	2621	350	6856	336	9481	934	.039 5572	1 008	40		335 336 337
	30	2970	349	6520	337	0.962 0414	933	.039 4563	1 009	30		1 33 5 33 6 33 7
	40	3320	350	6183	337	1348	934	.039 3554	1 009	20		2 67 0 67 2 67 4
	50	3669	349	5847	336	2281	933	.039 2546	1 008	10		3 100 5 100 8 101 1
							934		1 008			4 134 0 134 4 134 8
54	0	0 693 4018		0.720 5511		0.962 3215		1.039 1538		0	6	
	10	4368	350	5175	336	4149	934	.039 0529	1 009	50		5 167 5 168 0 168 5
	20	4717	349	4839	336	5083	934	.038 9521	1 008	40		6 201 0 201 6 202 2
	30	5066	349	4503	337	6017	934	.038 8513	1 008	30		7 234 5 235 2 235 9
	40	5415	349	4166	337	6951	934	.038 7505	1 008	20		8 268 0 268 8 269 6
	50	5765	350	3830	336	7885	934	.038 6497	1 008	10		9 301 5 302 4 303 3
			349		336				1 008			
55	0	0 693 6114		0.720 3494		0.962 8819		1.038 5489		0	5	
	10	0463	349	3158	336	9754	935	.038 4482	1 007	50		Tangent
	20	0812	349	2821	337	0.963 0688	934	.038 3474	1 008	40		932 933 934
	30	1162	350	2485	336	1623	935	.038 2467	1 007	30		1 93 2 93 3 93 4
	40	1511	349	2149	337	2557	934	.038 1459	1 008	20		2 186 4 186 6 186 8
	50	1860	349	1812	336	3492	935	.038 0452	1 007	10		3 279 6 279 9 280 2
									1 007			4 372 8 373 2 373 6
56	0	0.693 8209		0.720 1476		0.963 4427		1.037 9445		0	4	
	10	8558	349	1139	337	5362	935	.037 8438	1 007	50		5 466 0 466 5 467 0
	20	8907	349	0803	336	6297	935	.037 7431	1 007	40		6 559 2 559 8 560 4
	30	9256	349	0467	337	7232	935	.037 6424	1 007	30		7 652 4 653 1 653 8
	40	9606	350	0130	337	8167	935	.037 5417	1 007	20		8 745 6 746 4 747 2
	50	9955	349	0.719 9794	337	9102	935	.037 4410	1 006	10		9 838 8 839 7 840 6
									1 006			
57	0	0 694 0304		0.719 9457		0.964 0037		1.037 3404		0	3	
	10	0653	349	9121	336	0973	936	.037 2397	1 007	50		935 936 937
	20	1002	349	8784	337	1908	935	.037 1391	1 007	40		1 93 5 93 6 93 7
	30	1351	349	8448	336	2844	936	.037 0385	1 006	30		2 187 0 187 2 187 4
	40	1700	349	8111	337	3779	935	.036 9379	1 006	20		3 280 5 280 8 281 1
	50	2049	349	7775	337	4715	936	.036 8373	1 006	10		4 374 0 374 4 374 8
									1 006			5 467 5 468 0 468 5
58	0	0.694 2398		0.719 7438		0.964 5651		1.036 7367		0	2	
	10	2747	349	7102	336	6587	936	.036 6361	1 006	50		6 561 0 561 6 562 2
	20	3095	348	6765	337	7523	936	.036 5355	1 006	40		7 654 5 655 2 655 9
	30	3444	349	6428	337	8459	936	.036 4349	1 006	30		8 748 0 748 8 749 6
	40	3793	349	6092	336	9395	936	.036 3344	1 005	20		9 841 5 842 4 843 3
	50	4142	349	5755	337	0.965 0331	937	.036 2338	1 005	10		
									1 005			
59	0	0.694 4491		0.719 5418		0.965 1268		1.036 1333		0	1	
	10	4840	349	5082	336	2204	936	.036 0328	1 005	50		Cotangent
	20	5189	349	4745	337	3141	937	.035 9323	1 005	40		1010 1000
	30	5537	348	4408	336	4077	936	.035 8318	1 005	30		1 101 0 100 0
	40	5886	349	4072	336	5014	937	.035 7313	1 005	20		2 202 0 200 0
	50	6235	349	3735	337	5951	937	.035 6308	1 005	10		3 303 0 300 0
							937		1 005			4 404 0 400 0
60	0	0.694 6584		0.719 3398		0.965 6888		1.035 5303		0	0	
												5 505 0 500 0
												6 606 0 600 0
												7 707 0 700 0
												8 808 0 800 0
												9 909 0 900 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff			Proportional Parts

46° 0'

44° 0'

		Sine	Diff.	Cosine	Diff.	Tangent	Diff.	Cotangent	Diff.			Proportional Parts
0	0	0.694 6584		0.719 3398		0.965 6888		1.035 5303		0	60	
	10	6932	348	3061	337	7825	937	.035 4298	1 005	50		
	20	7281	349	2724	336	8762	937	.035 3294	1 004	40		
	30	7630	349	2388	337	9699	937	.035 2290	1 004	30		
	40	7979	349	2051	337	0.966 0636	937	.035 1285	1 005	20		
	50	8327	348	1714	337	1573	938	.035 0281	1 004	10		
1	0	0.694 8676		0.719 1377		0.966 2511		1.034 9277		0	59	
	10	9025	349	1040	337	3448	937	.034 8273	1 004	50		
	20	9373	348	0703	337	4386	938	.034 7269	1 004	40		
	30	9722	349	0366	337	5324	937	.034 6265	1 004	30		
	40	0.695 0070	348	0029	337	6261	938	.034 5261	1 004	20		
	50	0419	348	0.718 9692	337	7199	938	.034 4258	1 003	10		
2	0	0.695 0767		0.718 9355		0.966 8137		1.034 3254		0	58	
	10	1116	349	9018	337	9075	938	.034 2251	1 003	50		
	20	1465	349	8681	337	0.967 0013	938	.034 1247	1 004	40		
	30	1813	348	8344	337	0952	939	.034 0244	1 003	30		
	40	2162	349	8007	337	1890	938	.033 9241	1 003	20		
	50	2510	348	7670	337	2828	939	.033 8238	1 003	10		
3	0	0.695 2858		0.718 7333		0.967 3767		1.033 7235		0	57	
	10	3207	349	6996	337	4705	938	.033 6232	1 003	50		
	20	3555	348	6659	337	5644	939	.033 5229	1 003	40		
	30	3904	348	6322	337	6583	939	.033 4227	1 002	30		
	40	4252	349	5985	337	7521	938	.033 3224	1 003	20		
	50	4601	348	5648	338	8460	939	.033 2222	1 002	10		
4	0	0.695 4949		0.718 5310		0.967 9399		1.033 1220		0	56	
	10	5297	348	4973	337	0.968 0338	939	.033 0217	1 003	50		
	20	5646	349	4636	337	1278	940	.032 9215	1 002	40		
	30	5994	348	4299	337	2217	939	.032 8213	1 002	30		
	40	6342	348	3962	338	3156	940	.032 7211	1 002	20		
	50	6690	349	3624	337	4096	939	.032 6209	1 001	10		
5	0	0.695 7039		0.718 3287		0.968 5035		1.032 5208		0	55	
	10	7387	348	2950	337	5975	940	.032 4206	1 002	50		
	20	7735	348	2612	338	6914	939	.032 3205	1 001	40		
	30	8083	348	2275	337	7854	940	.032 2203	1 002	30		
	40	8432	349	1938	337	8794	940	.032 1202	1 001	20		
	50	8780	348	1600	338	9734	940	.032 0201	1 001	10		
6	0	0.695 9128		0.718 1263		0.969 0674		1.031 9199		0	54	
	10	9476	348	0926	337	1614	940	.031 8198	1 001	50		
	20	9824	348	0588	338	2555	941	.031 7198	1 000	40		
	30	0.696 0172	348	0251	337	3495	940	.031 6197	1 001	30		
	40	0520	348	0.717 9913	338	4435	941	.031 5196	1 001	20		
	50	0869	349	9576	337	5376	940	.031 4195	1 000	10		
7	0	0.696 1217		0.717 9238		0.969 6316		1.031 3195		0	53	
	10	1565	348	8901	337	7257	941	.031 2194	1 001	50		
	20	1913	348	8563	338	8198	941	.031 1194	1 000	40		
	30	2261	348	8226	337	9139	941	.031 0194	1 000	30		
	40	2609	348	7888	338	0.970 0080	941	.030 9194	1 000	20		
	50	2957	348	7551	338	1021	941	.030 8194	1 000	10		
8	0	0.696 3305		0.717 7213		0.970 1962		1.030 7194		0	52	
	10	3653	348	6876	337	2903	941	.030 6194	1 000	50		
	20	4001	348	6538	338	3844	941	.030 5194	1 000	40		
	30	4348	347	6200	338	4786	942	.030 4195	999	30		
	40	4696	348	5863	337	5727	941	.030 3195	1 000	20		
	50	5044	348	5525	338	6669	942	.030 2196	999	10		
9	0	0.696 5392		0.717 5187		0.970 7610		1.030 1196		0	51	
	10	5740	348	4850	337	8552	942	.030 0197	999	50		
	20	6088	348	4512	338	9494	942	.029 9198	999	40		
	30	6436	347	4174	338	0.971 0436	942	.029 8199	999	30		
	40	6783	348	3836	337	1378	942	.029 7200	999	20		
	50	7131	348	3499	338	2320	942	.029 6201	998	10		
10	0	0.696 7479		0.717 3161		0.971 3262		1.029 5203		0	50	
		Cosine	Diff.	Sine	Diff.	Cotangent	Diff.	Tangent	Diff.			Proportional Parts

45° 50'

44° 10'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
10	0	0.696 7479		0.717 3161		0.971 3262		1.029 5203		0	50	
	10	7827	348	2823	338	4204	942	.029 4204	999	50		Sine
	20	8175	348	2485	338	5147	943	.029 3205	999	40		346 347 348
	30	8522	347	2147	338	6089	942	.029 2207	998	30		1 34 6 34 7 34 8
	40	8870	348	1809	338	7032	943	.029 1208	999	20		2 69 2 69 4 69 6
	50	9218	348	1472	337	7974	942	.029 0210	998	10		3 103 8 104 1 104 4
			347		338		943					4 138 4 138 8 139 2
11	0	0.696 9665		0.717 1134		0.971 8917		1.028 9212		0	49	
	10	9913	348	0796	338	9860	943	.028 8214	998	50		5 173 0 173 5 174 0
	20	0.697 0261	348	0458	338	0.972 0803	943	.028 7216	998	40		6 207 6 208 2 208 8
	30	0608	347	0120	338	1746	943	.028 6219	997	30		7 242 2 242 9 243 6
	40	0956	348	0.716 9782	338	2689	943	.028 5221	998	20		8 276 8 277 6 278 4
	50	1303	347	9444	338	3632	943	.028 4223	997	10		9 311 4 312 3 313 2
			348									
12	0	0.697 1651		0.716 9106		0.972 4575		1.028 3226		0	48	
	10	1999	348	8768	338	5518	943	.028 2228	998	50		Cosine
	20	2346	347	8430	338	6462	944	.028 1231	997	40		337 338 339
	30	2694	348	8092	338	7405	943	.028 0234	997	30		1 33 7 33 8 33 9
	40	3041	347	7754	338	8349	944	.027 9237	997	20		2 67 4 67 6 67 8
	50	3389	348	7416	338	9293	944	.027 8240	997	10		3 101 1 101 4 101 7
			347		338		943					4 134 8 135 2 135 6
13	0	0.697 3736		0.716 7078		0.973 0236		1.027 7243		0	47	
	10	4084	348	6740	338	1180	944	.027 6246	997	50		5 168 5 169 0 169 5
	20	4431	347	6402	338	2124	944	.027 5249	997	40		6 202 2 202 8 203 4
	30	4778	348	6063	339	3068	944	.027 4252	997	30		7 235 9 236 6 237 3
	40	5126	347	5725	338	4012	944	.027 3256	996	20		8 269 6 270 4 271 2
	50	5473	348	5387	338	4957	945	.027 2259	997	10		9 303 3 304 2 305 1
							944		996			
14	0	0.697 5821		0.716 5049		0.973 5901		1.027 1263		0	46	
	10	6168	347	4711	339	6845	944	.027 0267	996	50		Tangent
	20	6515	347	4372	339	7790	945	.026 9271	996	40		942 943
	30	6863	348	4034	338	8734	944	.026 8275	996	30		1 94 2 94 3
	40	7210	347	3696	338	9679	945	.026 7279	996	20		2 188 4 188 6
	50	7557	348	3358	339	0.974 0624	945	.026 6283	996	10		3 282 6 282 9
												4 376 8 377 2
15	0	0.697 7905		0.716 3019		0.974 1569		1.026 5287		0	45	
	10	8252	347	2681	338	2514	945	.026 4291	996	50		5 471 0 471 5
	20	8599	347	2343	339	3459	945	.026 3296	995	40		6 565 2 565 8
	30	8946	348	2004	338	4404	945	.026 2301	995	30		7 659 4 660 1
	40	9294	347	1666	338	5349	945	.026 1305	995	20		8 753 6 754 4
	50	9641	347	1328	339	6294	946	.026 0310	995	10		9 847 8 848 7
16	0	0.697 9988		0.716 0989		0.974 7240		1.025 9315		0	44	
	10	0.698 0335	347	0651	338	8185	945	.025 8320	995	50		944 945
	20	0682	347	0313	339	9131	946	.025 7325	995	40		1 94 4 94 5
	30	1029	348	0.715 9974	339	0.975 0076	945	.025 6330	995	30		2 188 8 189 0
	40	1377	347	9636	338	1022	946	.025 5335	995	20		3 283 2 283 5
	50	1724	347	9297	338	1968	946	.025 4341	995	10		4 377 6 378 0
17	0	0.698 2071		0.715 8959		0.975 2914		1.025 3346		0	43	
	10	2418	347	8620	339	3860	946	.025 2352	994	50		5 472 0 472 5
	20	2765	347	8282	339	4806	946	.025 1357	994	40		6 566 4 567 0
	30	3112	347	7943	338	5752	946	.025 0363	994	30		7 660 8 661 5
	40	3459	347	7605	339	6698	947	.024 9369	994	20		8 755 2 756 0
	50	3806	347	7266	339	7645	946	.024 8375	994	10		9 849 6 850 5
18	0	0.698 4153		0.715 6927		0.975 8591		1.024 7381		0	42	
	10	4500	347	6589	338	9538	947	.024 6387	994	50		946 947 948
	20	4847	347	6250	339	0.976 0484	946	.024 5393	994	40		1 94 6 94 7 94 8
	30	5194	347	5911	339	1431	947	.024 4399	994	30		2 189 2 189 4
	40	5541	347	5573	338	2378	947	.024 3406	993	20		3 283 8 284 1
	50	5888	346	5234	339	3325	947	.024 2412	993	10		4 378 4 378 8
19	0	0.698 6234		0.715 4896		0.976 4272		1.024 1419		0	41	
	10	6581	347	4557	338	5219	947	.024 0426	993	50		5 473 0 473 5
	20	6928	347	4218	339	6166	947	.023 9433	993	40		6 567 6 568 2
	30	7275	347	3879	339	7113	948	.023 8440	993	30		7 662 2 662 9
	40	7622	347	3540	338	8061	947	.023 7447	993	20		8 756 8 757 6
	50	7969	346	3202	839	9008	948	.023 6454	993	10		9 851 4 852 3
20	0	0.698 8315		0.715 2863		0.976 9956		1.023 5461		0	40	
												Cotangent
												1000 990
												1 100 0 99 0
												2 200 0 198 0
												3 300 0 297 0
												4 400 0 396 0
												5 500 0 495 0
												6 600 0 594 0
												7 700 0 693 0
												8 800 0 792 0
												9 900 0 891 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff			Proportional Parts

45° 40'

44° 20'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
20	0	0.698 8315		0.715 2863		0.976 9956		1.023 5461		0	40	Sine
	10	8662	347	2524	339	0.977 0903	947	0.23 4468	993	50		345 346 347
	20	9009	347	2185	339	1851	948	.023 3476	992	40		1 34 5 34 6 34 7
	30	9356	347	1846	339	2799	948	.023 2483	992	30		2 69 0 69 2 69 4
	40	9702	346	1508	338	3747	948	.023 1491	992	20		3 103 5 103 8 104 1
	50	0.699 0049	347	1169	339	4695	948	0.23 0499	992	10		4 138 0 138 4 138 8
21	0	0.699 0398		0.715 0830		0.977 5643		1.022 9606		0	39	Sine
	10	0742	346	0491	339	6591	948	.022 8514	992	50		5 172 5 173 0 173 5
	20	1089	347	0152	339	7539	948	.022 7522	992	40		6 207 0 207 6 208 2
	30	1436	347	0.714 9813	339	8488	949	.022 6530	992	30		7 241 5 242 2 242 9
	40	1782	346	9474	339	9436	948	0.22 5539	991	20		8 276 0 276 8 277 6
	50	2129	347	9135	339	0.978 0385	949	0.22 4547	992	10		9 310 5 311 4 312 3
22	0	0.699 2476		0.714 8796		0.978 1333		1.022 3555		0	38	Cosine
	10	2822	346	8457	339	2282	949	.022 2564	991	50		338 339 340
	20	3169	347	8118	339	3231	949	.022 1572	992	40		1 33 8 33 9 34 0
	30	3515	346	7779	339	4180	949	0.22 0581	991	30		2 67 6 67 8 68 0
	40	3862	347	7440	339	5128	948	0.21 9590	991	20		3 101 4 101 7 102 0
	50	4208	347	7101	339	6078	950	.021 8599	991	10		4 135 2 135 6 136 0
23	0	0.699 4555		0.714 6762		0.978 7027		1.021 7608		0	37	Cosine
	10	4901	346	6423	339	7976	949	0.21 6617	991	50		5 169 0 169 5 170 0
	20	5248	347	6083	339	8925	949	.021 5626	991	40		6 202 8 203 1 204 0
	30	5594	346	5744	339	9875	950	.021 4635	991	30		7 236 6 237 3 238 0
	40	5941	347	5405	339	0.979 0824	949	.021 3645	990	20		8 270 4 271 2 272 0
	50	6287	346	5066	339	1774	950	0.21 2654	991	10		9 304 2 305 1 306 0
24	0	0.699 6633		0.714 4727		0.979 2724		1.021 1664		0	36	Tangent
	10	6980	347	4388	339	3673	949	0.21 0673	991	50		947 948
	20	7326	346	4048	340	4623	950	0.20 9683	990	40		1 94 7 94 8
	30	7672	346	3709	339	5573	950	0.20 8693	990	30		2 189 4 189 6
	40	8019	347	3370	339	6523	950	0.20 7703	990	20		3 284 1 284 4
	50	8365	346	3031	340	7473	951	.020 6713	990	10		4 378 8 379 2
25	0	0.699 8711		0.714 2691		0.979 8424		1.020 5723		0	35	Tangent
	10	9058	347	2352	339	9374	950	.020 4734	989	50		5 473 5 474 0
	20	9404	346	2013	340	0.980 0324	950	.020 3744	990	40		6 568 2 568 8
	30	9750	346	1673	339	1275	951	.020 2754	990	30		7 662 9 663 6
	40	0.700 0096	347	1334	339	2225	951	0.20 1765	989	20		8 757 6 758 4
	50	0443	346	0995	340	3176	951	0.20 0776	990	10		9 852 3 853 2
26	0	0.700 0789		0.714 0655		0.980 4127		1.019 9786		0	34	Tangent
	10	1135	346	0316	339	5078	951	.019 8797	989	50		949 950
	20	1481	346	0.713 9976	340	6029	951	0.019 7808	989	40		1 91 9 95 0
	30	1827	346	9637	340	6980	951	0.019 6819	989	30		2 189 8 190 0
	40	2173	347	9297	339	7931	951	0.019 5830	989	20		3 284 7 285 0
	50	2520	346	8958	340	8882	951	.019 4842	988	10		4 379 6 380 0
27	0	0.700 2866		0.713 8618		0.980 9833		1.019 3853		0	33	Tangent
	10	3212	346	8279	339	0.981 0785	952	.019 2864	989	50		5 471 5 475 0
	20	3558	346	7939	340	1736	952	.019 1876	988	40		6 569 4 570 0
	30	3904	346	7600	340	2688	952	0.019 0888	988	30		7 664 3 665 0
	40	4250	346	7260	340	3640	951	.018 9899	988	20		8 759 2 760 0
	50	4596	346	6921	340	4591	952	0.018 8911	988	10		9 854 1 855 0
28	0	0.700 4942		0.713 6581		0.981 5543		1.018 7923		0	32	Cotangent
	10	5288	346	6241	340	6495	952	0.018 6935	988	50		951 952 953
	20	5634	346	5902	339	7447	952	.018 5947	988	40		1 95 1 95 2 95 3
	30	5980	346	5562	340	8399	952	.018 4960	987	30		2 190 2 190 4 190 6
	40	6326	346	5222	339	9352	953	.018 3972	988	20		3 285 3 285 6 285 9
	50	6672	346	4883	340	0.982 0304	952	.018 2984	987	10		4 380 4 380 8 381 2
29	0	0.700 7018		0.713 4543		0.982 1256		1.018 1997		0	31	Cotangent
	10	7363	345	4203	340	2209	953	.018 1009	988	50		5 475 5 476 0 476 5
	20	7709	346	3864	339	3161	952	.018 0022	987	40		6 570 6 571 2 571 8
	30	8055	346	3524	340	4114	953	.017 9035	987	30		7 665 7 666 4 667 1
	40	8401	346	3184	340	5067	953	0.017 8048	987	20		8 760 8 761 6 762 4
	50	8747	346	2844	340	6020	953	0.017 7061	987	10		9 855 9 856 8 857 7
30	0	0.700 9093		0.713 2504		0.982 6973		1.017 6074		0	30	Cotangent
												990 980
												1 99 0 98 0
												2 198 0 196 0
												3 297 0 294 0
												4 396 0 392 0
												5 495 0 490 0
												6 594 0 588 0
												7 693 0 686 0
												8 792 0 784 0
												9 891 0 882 0
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff			Proportional Parts

45° 30'

44° 30'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff.			Proportional Parts
30	0	0 700 9093		0.713 2504		0.982 6973		1.017 6074		0	30	
	10	9438	345	2165	339	7926	953	.017 5087	987	50		Sine
	20	9784	346	1825	340	8879	953	.017 4100	986	40		344 345 346
	30	0 701 0130	346	1485	340	9832	953	.017 3114	986	30		1 34 4 34 5 34 6
	40	0476	346	1145	340	0.983 0785	953	.017 2127	987	20		2 68 8 69 0 69 2
	50	0821	345	0805	340	1739	954	.017 1141	986	10		3 103 2 103 5 103 8
			346		340		953		986			4 137 6 138 0 138 4
31	0	0 701 1167		0.713 0465		0.983 2692		1.017 0155		0	29	
	10	1513	346	0125	340	3646	954	.016 9168	987	50		5 172 0 172 5 173 0
	20	1858	345	0.712 9785	340	4600	954	.016 8182	986	40		6 206 4 207 0 207 6
	30	2204	346	9446	339	5553	953	.016 7196	986	30		7 240 8 241 5 242 2
	40	2550	346	9106	340	6507	954	.016 6210	986	20		8 275 2 276 0 276 8
	50	2895	345	8766	340	7461	954	.016 5224	986	10		9 309 6 310 5 311 4
			346		340		954		985			
32	0	0 701 3241		0.712 8426		0.983 8415		1.016 4239		0	28	
	10	3587	346	8086	340	9369	954	.016 3253	986	50		Cosine
	20	3932	345	7746	340	0.984 0323	954	.016 2268	985	40		339 340 341
	30	4278	346	7405	341	1278	955	.016 1282	986	30		1 33 9 34 0 34 1
	40	4623	345	7065	340	2232	954	.016 0297	985	20		2 67 8 68 0 68 2
	50	4969	346	6725	340	3187	955	.015 9312	985	10		3 101 7 102 0 102 3
			345		340		954		986			4 135 6 136 0 136 4
33	0	0 701 5314		0.712 6385		0.984 4141		1.015 8326		0	27	
	10	5660	346	6045	340	5096	955	.015 7341	985	50		5 169 5 170 0 170 5
	20	6005	345	5705	340	6051	955	.015 6356	985	40		6 203 4 204 0 204 6
	30	6351	346	5365	340	7006	955	.015 5372	984	30		7 237 3 238 0 238 7
	40	6696	345	5025	340	7961	955	.015 4387	985	20		8 271 2 272 0 272 8
	50	7042	346	4684	341	8916	955	.015 3402	985	10		9 305 1 306 0 306 9
			345		340		955		984			
34	0	0 701 7387		0.712 4344		0.984 9871		1.015 2418		0	26	
	10	7732	345	4004	340	0.985 0826	955	.015 1433	985	50		Tangent
	20	8078	346	3664	340	1781	955	.015 0449	984	40		953 954
	30	8423	345	3324	340	2737	956	.014 9464	985	30		1 95 3 95 4
	40	8768	345	2983	341	3692	955	.014 8480	984	20		2 190 6 190 8
	50	9114	346	2643	340	4648	956	.014 7496	984	10		3 285 0 286 2
			345		340		955		984			4 381 2 381 6
35	0	0 701 9459		0.712 2303		0.985 5603		1.014 6512		0	25	
	10	9804	346	1962	341	6559	956	.014 5528	984	50		5 476 5 477 0
	20	0 702 0150	346	1622	340	7515	956	.014 4544	984	40		6 571 8 572 4
	30	0495	345	1282	340	8471	956	.014 3561	983	30		7 667 1 667 8
	40	0840	345	0941	340	9427	956	.014 2577	983	20		8 762 4 763 2
	50	1185	345	0601	340	0.986 0383	956	.014 1594	984	10		9 857 7 858 6
			346		341		956		984			
36	0	0 702 1531		0.712 0260		0.986 1339		1.014 0610		0	24	
	10	1876	345	0.711 9920	340	2296	957	.013 9627	983	50		955 956
	20	2221	345	9580	341	3252	957	.013 8644	983	40		1 95 5 95 6
	30	2566	345	9239	341	4209	957	.013 7661	983	30		2 191 0 191 2
	40	2911	345	8899	340	5165	956	.013 6678	983	20		3 286 5 286 8
	50	3256	345	8558	341	6122	957	.013 5695	983	10		4 382 0 382 4
			346		340		957		983			5 477 5 478 0
37	0	0 702 3601		0.711 8218		0.986 7079		1.013 4712		0	23	
	10	3947	346	7877	341	8036	957	.013 3729	983	50		6 573 0 573 6
	20	4292	345	7537	341	8993	957	.013 2747	982	40		7 668 5 669 2
	30	4637	345	7196	341	9950	957	.013 1764	983	30		8 764 0 764 8
	40	4982	345	6855	341	0.987 0907	957	.013 0782	983	20		9 859 5 860 4
	50	5327	345	6515	340	1864	957	.012 9799	982	10		
			346		341		957		982			957 958 959
38	0	0 702 5672		0.711 6174		0.987 2821		1.012 8817		0	22	
	10	6017	345	5834	340	3779	958	.012 7835	982	50		1 191 4 191 6 191 8
	20	6362	345	5493	341	4736	957	.012 6853	982	40		2 287 1 287 4 287 7
	30	6707	345	5152	341	5694	958	.012 5871	982	30		3 382 8 383 2 383 6
	40	7052	345	4812	340	6652	958	.012 4889	982	20		4 478 5 479 0 479 5
	50	7397	344	4471	341	7609	958	.012 3907	982	10		5 574 2 574 8 575 4
							957		982			6 669 9 670 6 671 3
39	0	0 702 7741		0.711 4130		0.987 8567		1.012 2925		0	21	
	10	8086	345	3790	340	9525	958	.012 1944	981	50		7 765 6 766 4 767 2
	20	8431	345	3449	341	0.988 0483	958	.012 0962	982	40		8 861 3 862 2 863 1
	30	8776	345	3108	341	1441	959	.011 9981	981	30		
	40	9121	345	2767	340	2400	958	.011 9000	981	20		Cotangent
	50	9466	345	2427	341	3358	958	.011 8019	981	10		990 980
							958		981			1 99 0 98 0
40	0	0 702 9811		0.711 2086		0.988 4316		1.011 7038		0	20	
												2 198 0 196 0
												3 297 0 294 0
												4 396 0 392 0
												5 495 0 490 0
												6 594 0 588 0
												7 693 0 686 0
												8 792 0 784 0
												9 891 0 882 0
		Cosine	Diff.	Sine	Diff.	Cotangent	Diff.	Tangent	Diff.	"	"	Proportional Parts

45° 20'

44° 40'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
40	0	0.702 9811		0.711 2086		0.988 4316		1.011 7038		0	20	
	10	0.703 0155	344	1745	341	5275	959	.011 6057	981	50		Sine
	20	0500	345	1404	341	6234	958	.011 5076	981	40		343 344 345
	30	0845	345	1063	341	7192	959	.011 4095	981	30		1 31 3 34 4 34 5
	40	1190	345	0722	341	8151	959	.011 3114	981	20		2 68 6 68 8 69 0
	50	1534	344	0381	341	9110	959	.011 2133	981	10		3 102 9 103 2 103 5
			345		340				980			4 137 2 137 6 138 0
41	0	0.703 1879		0.711 0041		0.989 0069		1.011 1153		0	19	
	10	2224	345	0710 9700	341	1028	959	.011 0173	980	50		5 171 5 172 0 172 5
	20	2568	344	9359	341	1987	959	.010 9192	981	40		6 305 8 306 4 307 0
	30	2913	345	9018	341	2946	959	.010 8212	980	30		7 240 1 240 6 241 5
	40	3258	344	8677	341	3906	960	.010 7232	980	20		8 374 4 375 2 376 0
	50	3602	345	8336	341	4865	959	.010 6252	980	10		9 308 7 309 6 310 5
42	0	0.703 3947		0.710 7995		0.989 5825		1.010 5272		0	18	
	10	4292	345	7654	341	6784	959	.010 4292	980	50		Cosine
	20	4636	344	7313	341	7744	960	.010 3312	980	40		340 341 342
	30	4981	344	6972	341	8704	960	.010 2333	979	30		1 31 0 34 1 34 2
	40	5325	344	6631	341	9664	960	.010 1353	980	20		2 68 0 68 2 68 4
	50	5670	345	6289	342	0 990 0624	960	.010 0374	979	10		3 102 0 102 3 102 6
			344		341				980			4 136 0 136 4 136 8
43	0	0 703 6014		0.710 5948		0 990 1584		1.009 9394		0	17	
	10	6359	345	5607	341	2544	960	.009 8415	979	50		5 170 0 170 5 171 0
	20	6703	344	5266	341	3504	960	.009 7436	979	40		6 304 0 304 6 305 2
	30	7048	345	4925	341	4465	961	.009 6457	979	30		7 238 0 238 7 239 4
	40	7392	344	4584	341	5425	960	.009 5478	979	20		8 372 0 372 8 373 6
	50	7737	345	4243	341	6386	961	.009 4499	979	10		9 306 0 306 9 307 8
			344		342							
44	0	0.703 8081		0.710 3901		0.990 7346		1.009 3520		0	16	
	10	8425	344	3560	341	8307	961	.009 2541	979	50		Tangent
	20	8770	345	3219	341	9268	961	.009 1563	978	40		958 959
	30	9114	344	2878	341	0 991 0229	961	.009 0584	979	30		1 365 8 366 1
	40	9459	345	2536	342	1190	961	.008 9606	978	20		2 191 6 191 8
	50	9803	344	2195	341	2151	961	.008 8628	978	10		3 287 4 287 7
												4 383 2 383 6
45	0	0 704 0147		0.710 1854		0.991 3112		1.008 7649		0	15	
	10	0492	345	1512	342	4073	961	.008 6671	978	50		5 479 0 479 5
	20	0836	344	1171	341	5035	962	.008 5693	978	40		6 574 8 575 4
	30	1180	344	0830	342	5996	961	.008 4715	978	30		7 670 6 671 3
	40	1524	345	0488	341	6958	961	.008 3738	978	20		8 766 4 767 2
	50	1869	344	0147	341	7919	962	.008 2760	978	10		9 862 2 863 1
46	0	0 704 2213		0.709 9806		0.991 8881		1.008 1782		0	14	
	10	2557	344	9464	342	9843	962	.008 0805	977	50		960 961
	20	2901	344	9123	341	0 992 0805	962	.007 9827	978	40		1 96 0 96 1
	30	3245	344	8781	342	1767	962	.007 8850	977	30		2 192 0 192 2
	40	3589	345	8440	341	2729	962	.007 7873	977	20		3 288 0 288 3
	50	3934	344	8098	341	3691	963	.007 6895	977	10		4 384 0 384 4
47	0	0.704 4278		0.709 7757		0.992 4654		1.007 5918		0	13	
	10	4622	344	7415	342	5616	962	.007 4941	977	50		5 480 0 480 5
	20	4966	344	7074	342	6579	962	.007 3965	977	40		6 576 0 576 6
	30	5310	344	6732	342	7541	962	.007 2988	977	30		7 672 0 672 7
	40	5654	344	6391	341	8504	963	.007 2011	977	20		8 768 0 768 8
	50	5998	344	6049	342	9467	962	.007 1034	976	10		9 864 0 864 9
48	0	0.704 6342		0.709 5707		0.993 0429		1.007 0058		0	12	
	10	6686	344	5366	341	1392	963	.006 9082	976	50		962 963 964
	20	7030	344	5024	342	2355	964	.006 8105	977	40		1 96 2 96 3 96 4
	30	7374	344	4682	342	3319	963	.006 7129	976	30		2 192 4 192 6
	40	7718	344	4341	341	4282	963	.006 6153	976	20		3 288 6 288 9
	50	8062	344	3999	342	5245	963	.006 5177	976	10		4 384 8 385 2
49	0	0.704 8406		0.709 3657		0.993 6208		1.006 4201		0	11	
	10	8750	344	3316	341	7172	964	.006 3225	976	50		5 481 0 481 5
	20	9094	344	2974	342	8136	963	.006 2249	975	40		6 577 2 577 8
	30	9438	343	2632	342	9099	964	.006 1274	976	30		7 673 4 674 1
	40	9781	344	2290	341	0 994 0063	964	.006 0298	975	20		8 769 6 770 4
	50	0.705 0125	344	1949	342	1027	964	.005 9323	975	10		9 865 8 866 7
50	0	0.705 0469		0.709 1607		0.994 1991		1.005 8348		0	10	
		Cosine	Diff	Sine	Diff	Cotangent	Diff	Tangent	Diff			Proportional Parts

45° 10'

44° 50'

		Sine	Diff	Cosine	Diff	Tangent	Diff	Cotangent	Diff			Proportional Parts
50	0	0.705 0469		0.709 1607		0.994 1991		1.005 8348		0	10	
	10	0813	344	1265	342	2955	964	.005 7372	976	50		
	20	1157	344	0923	342	3919	964	.005 6397	975	40		
	30	1500	343	0581	342	4883	964	.005 5422	975	30		
	40	1844	344	0239	342	5848	965	.005 4447	975	20		
	50	2188	344	0.708 9897	341	6812	964	.005 3472	975	10		
51	0	0.705 2532		0.708 9556		0.994 7777		1.005 2497		0	9	Sine
	10	2875	343	9214	342	8741	964	.005 1523	974	50		343 344
	20	3219	344	8872	342	9706	965	.005 0548	975	40		1 34 3 34 4
	30	3563	344	8530	342	0.995 0671	965	.004 9574	974	30		2 68 6 68 8
	40	3906	343	8188	342	1636	965	.004 8599	975	20		3 102 9 103 2
	50	4250	344	7846	342	2601	965	.004 7625	974	10		4 137 2 137 6
52	0	0.705 4594		0.708 7504		0.995 3566		1.004 6651		0	8	5 171 5 172 0
	10	4937	343	7162	342	4531	965	.004 5677	974	50		6 205 8 206 4
	20	5281	344	6820	342	5496	965	.004 4703	974	40		7 240 1 240 8
	30	5624	343	6478	342	6462	966	.004 3729	974	30		8 274 4 275 2
	40	5968	344	6136	342	7527	965	.004 2755	974	20		9 308 7 309 6
	50	6311	344	5793	342	8393	966	.004 1781	974	10		
53	0	0.705 6655		0.708 6451		0.995 9358		1.004 0807		0	7	Cosine
	10	6998	343	5109	342	0.996 0324	966	.003 9834	973	50		341 342
	20	7342	344	4767	342	1290	966	.003 8861	973	40		1 34 1 34 2
	30	7685	343	4425	342	2256	966	.003 7887	974	30		2 68 2 68 4
	40	8029	344	4083	342	3222	966	.003 6914	973	20		3 102 3 102 6
	50	8372	343	3741	342	4188	966	.003 5941	973	10		4 136 4 136 8
54	0	0.705 8716		0.708 3398		0.996 5154		1.003 4968		0	6	5 170 5 171 0
	10	9059	343	3056	342	6120	966	.003 3995	973	50		6 204 6 205 2
	20	9402	343	2714	342	7087	967	.003 3022	973	40		7 238 7 239 4
	30	9746	344	2372	342	8053	966	.003 2049	973	30		8 272 8 273 6
	40	0.706 0089	343	2029	343	9020	967	.003 1076	973	20		9 306 9 307 8
	50	0433	344	1687	342	9987	967	.003 0104	972	10		
55	0	0.706 0776		0.708 1345		0.997 0953		1.002 9131		0	5	Tangent
	10	1119	343	1002	343	1920	967	.002 8159	972	50		964 965 966
	20	1462	343	0660	342	2887	967	.002 7186	973	40		1 96 4 96 5 96 6
	30	1806	344	0318	342	3854	967	.002 6214	972	30		2 192 8 193 0 193 2
	40	2149	343	0.707 9975	343	4821	967	.002 5242	972	20		3 289 2 289 5 289 8
	50	2492	343	9633	342	5789	968	.002 4270	972	10		4 385 6 386 0 386 4
56	0	0.706 2835		0.707 9291		0.997 6756		1.002 3298		0	4	5 482 0 482 5 483 0
	10	3179	344	8948	343	7723	967	.002 2326	972	50		6 578 4 579 0 579 6
	20	3522	343	8606	342	8691	968	.002 1355	971	40		7 674 8 675 5 676 2
	30	3865	343	8263	343	9659	968	.002 0383	972	30		8 771 2 772 0 772 8
	40	4208	343	7921	343	0.998 0626	968	.001 9411	971	20		9 867 6 868 5 869 4
	50	4551	343	7578	342	1594	968	.001 8440	971	10		
57	0	0.706 4894		0.707 7236		0.998 2562		1.001 7469		0	3	967 968 969
	10	5238	344	6893	343	3530	968	.001 6497	972	50		1 96 7 96 8 96 9
	20	5581	343	6551	342	4498	968	.001 5526	971	40		2 193 4 193 6 193 8
	30	5924	343	6208	343	5466	968	.001 4555	971	30		3 290 1 290 4 290 7
	40	6267	343	5866	342	6434	968	.001 3584	971	20		4 386 8 387 2 387 6
	50	6610	343	5523	343	7403	969	.001 2613	971	10		5 483 5 484 0 484 5
58	0	0.706 6953		0.707 5180		0.998 8371		1.001 1642		0	2	6 580 2 580 8 581 4
	10	7296	343	4838	342	9340	969	.001 0672	970	50		7 676 9 677 6 678 3
	20	7639	343	4495	343	0.999 0308	968	.000 9701	971	40		8 773 6 774 4 775 2
	30	7982	343	4152	343	1277	969	.000 8730	971	30		9 870 3 871 2 872 1
	40	8325	343	3810	342	2446	969	.000 7760	970	20		
	50	8668	343	3467	343	3215	969	.000 6790	971	10		Cotangent
59	0	0.706 9011		0.707 3124		0.999 4184		1.000 5819		0	1	980 970
	10	9354	343	2782	342	5153	969	.000 4849	970	50		1 98 0 97 0
	20	9696	342	2439	343	6122	969	.000 3879	970	40		2 196 0 194 0
	30	0.707 0039	343	2096	343	7092	970	.000 2909	970	30		3 294 0 291 0
	40	0382	343	1753	343	8061	969	.000 1939	970	20		4 392 0 388 0
	50	0725	343	1411	342	9030	969	.000 0970	969	10		5 490 0 485 0
60	0	0.707 1068		0.707 1068		1.000 0000		1.000 0000		0	0	6 588 0 582 0
												7 686 0 679 0
												8 784 0 776 0
												9 882 0 873 0
		Cosine	Diff.	Sine	Diff.	Cotangent	Diff.	Tangent	Diff.	"	"	Proportional Parts

45° 0'

PART II
MISCELLANEOUS TABLES

TABLE 2. LENGTHS OF CIRCULAR ARCS; RADIUS = 1

'	0°	1°	2°	3°	4°	''	
0	.0000000	.0174533	.0349066	.0523599	.0698132	0	.0000000
1	.0002909	.0177442	.0351975	.0526508	.0701041	1	.0000048
2	.0005818	.0180351	.0354884	.0529417	.0703949	2	.0000097
3	.0008727	.0183260	.0357792	.0532325	.0706858	3	.0000145
4	.0011636	.0186168	.0360701	.0535234	.0709767	4	.0000194
5	.0014544	.0189077	.0363610	.0538143	.0712676	5	.0000242
6	.0017453	.0191986	.0366519	.0541052	.0715585	6	.0000291
7	.0020362	.0194895	.0369428	.0543961	.0718494	7	.0000339
8	.0023271	.0197804	.0372337	.0546870	.0721403	8	.0000388
9	.0026180	.0200713	.0375246	.0549779	.0724312	9	.0000436
10	.0029089	.0203622	.0378155	.0552688	.0727221	10	.0000485
11	.0031998	.0206531	.0381064	.0555596	.0730129	11	.0000533
12	.0034907	.0209440	.0383972	.0558505	.0733038	12	.0000582
13	.0037815	.0212348	.0386881	.0561414	.0735947	13	.0000630
14	.0040724	.0215257	.0389790	.0564323	.0738856	14	.0000679
15	.0043633	.0218166	.0392699	.0567232	.0741765	15	.0000727
16	.0046542	.0221075	.0395608	.0570141	.0744674	16	.0000776
17	.0049451	.0223984	.0398517	.0573050	.0747583	17	.0000824
18	.0052360	.0226893	.0401426	.0575959	.0750492	18	.0000873
19	.0055269	.0229802	.0404335	.0578868	.0753400	19	.0000921
20	.0058178	.0232711	.0407243	.0581776	.0756309	20	.0000970
21	.0061087	.0235619	.0410152	.0584685	.0759218	21	.0001018
22	.0063995	.0238528	.0413061	.0587594	.0762127	22	.0001067
23	.0066904	.0241437	.0415970	.0590503	.0765036	23	.0001115
24	.0069813	.0244346	.0418879	.0593412	.0767945	24	.0001164
25	.0072722	.0247255	.0421788	.0596321	.0770854	25	.0001212
26	.0075631	.0250164	.0424697	.0599230	.0773763	26	.0001261
27	.0078540	.0253073	.0427606	.0602139	.0776672	27	.0001309
28	.0081449	.0255982	.0430515	.0605047	.0779580	28	.0001357
29	.0084358	.0258891	.0433423	.0607956	.0782489	29	.0001406
30	.0087266	.0261799	.0436332	.0610865	.0785398	30	.0001454
31	.0090175	.0264708	.0439241	.0613774	.0788307	31	.0001503
32	.0093084	.0267617	.0442150	.0616683	.0791216	32	.0001551
33	.0095993	.0270526	.0445059	.0619592	.0794125	33	.0001600
34	.0098902	.0273435	.0447968	.0622501	.0797034	34	.0001648
35	.0101811	.0276344	.0450877	.0625410	.0799943	35	.0001697
36	.0104720	.0279253	.0453786	.0628319	.0802851	36	.0001745
37	.0107629	.0282162	.0456694	.0631227	.0805760	37	.0001794
38	.0110538	.0285070	.0459603	.0634136	.0808669	38	.0001842
39	.0113446	.0287979	.0462512	.0637045	.0811578	39	.0001891
40	.0116355	.0290888	.0465421	.0639954	.0814487	40	.0001939
41	.0119264	.0293797	.0468330	.0642863	.0817396	41	.0001988
42	.0122173	.0296706	.0471239	.0645772	.0820305	42	.0002036
43	.0125082	.0299615	.0474148	.0648681	.0823214	43	.0002085
44	.0127991	.0302524	.0477057	.0651590	.0826123	44	.0002133
45	.0130900	.0305433	.0479966	.0654498	.0829031	45	.0002182
46	.0133809	.0308342	.0482874	.0657407	.0831940	46	.0002230
47	.0136717	.0311250	.0485783	.0660316	.0834849	47	.0002279
48	.0139626	.0314159	.0488692	.0663225	.0837758	48	.0002327
49	.0142535	.0317068	.0491601	.0666134	.0840667	49	.0002376
50	.0145444	.0319977	.0494510	.0669043	.0843576	50	.0002424
51	.0148353	.0322886	.0497419	.0671952	.0846485	51	.0002473
52	.0151262	.0325795	.0500328	.0674861	.0849394	52	.0002521
53	.0154171	.0328704	.0503237	.0677770	.0852302	53	.0002570
54	.0157080	.0331613	.0506145	.0680678	.0855211	54	.0002618
55	.0159989	.0334521	.0509054	.0683587	.0858120	55	.0002666
56	.0162897	.0337430	.0511963	.0686496	.0861029	56	.0002715
57	.0165806	.0340339	.0514872	.0689405	.0863938	57	.0002763
58	.0168715	.0343248	.0517781	.0692314	.0866847	58	.0002812
59	.0171624	.0346157	.0520690	.0695223	.0869756	59	.0002860
60	.0174533	.0349066	.0523599	.0698132	.0872665	60	.0002909

TABLE 2. LENGTHS OF CIRCULAR ARCS; RADIUS = 1

'	5°	6°	7°	8°	9°	"	
0	.0872665	.1047198	.1221730	.1396263	.1570796	0	.0000000
1	.0875574	.1050106	.1224639	.1399172	.1573705	1	.0000048
2	.0878482	.1053015	.1227548	.1402081	.1576614	2	.0000097
3	.0881391	.1055924	.1230457	.1404990	.1579523	3	.0000145
4	.0884300	.1058833	.1233366	.1407899	.1582432	4	.0000194
5	.0887209	.1061742	.1236275	.1410808	.1585341	5	.0000242
6	.0890118	.1064651	.1239184	.1413717	.1588250	6	.0000291
7	.0893027	.1067560	.1242093	.1416626	.1591159	7	.0000339
8	.0895936	.1070469	.1245002	.1419534	.1594067	8	.0000388
9	.0898845	.1073377	.1247910	.1422443	.1596976	9	.0000436
10	.0901753	.1076286	.1250819	.1425352	.1599885	10	.0000485
11	.0904662	.1079195	.1253728	.1428261	.1602794	11	.0000533
12	.0907571	.1082104	.1256637	.1431170	.1605703	12	.0000582
13	.0910480	.1085013	.1259546	.1434079	.1608612	13	.0000630
14	.0913389	.1087922	.1262455	.1436988	.1611521	14	.0000679
15	.0916298	.1090831	.1265364	.1439897	.1614430	15	.0000727
16	.0919207	.1093740	.1268273	.1442806	.1617338	16	.0000776
17	.0922116	.1096649	.1271181	.1445714	.1620247	17	.0000824
18	.0925025	.1099557	.1274090	.1448623	.1623156	18	.0000873
19	.0927933	.1102466	.1276999	.1451532	.1626065	19	.0000921
20	.0930842	.1105375	.1279908	.1454441	.1628974	20	.0000970
21	.0933751	.1108284	.1282817	.1457350	.1631883	21	.0001018
22	.0936660	.1111193	.1285726	.1460259	.1634792	22	.0001067
23	.0939569	.1114102	.1288635	.1463168	.1637701	23	.0001115
24	.0942478	.1117011	.1291544	.1466077	.1640609	24	.0001164
25	.0945387	.1119920	.1294453	.1468985	.1643518	25	.0001212
26	.0948296	.1122828	.1297361	.1471894	.1646427	26	.0001261
27	.0951204	.1125737	.1300270	.1474803	.1649336	27	.0001309
28	.0954113	.1128646	.1303179	.1477712	.1652245	28	.0001357
29	.0957022	.1131555	.1306088	.1480621	.1655154	29	.0001406
30	.0959931	.1134464	.1308997	.1483530	.1658063	30	.0001454
31	.0962840	.1137373	.1311906	.1486439	.1660972	31	.0001503
32	.0965749	.1140282	.1314815	.1489348	.1663881	32	.0001551
33	.0968658	.1143191	.1317724	.1492257	.1666789	33	.0001600
34	.0971567	.1146100	.1320632	.1495165	.1669698	34	.0001648
35	.0974475	.1149008	.1323541	.1498074	.1672607	35	.0001697
36	.0977384	.1151917	.1326450	.1500983	.1675516	36	.0001745
37	.0980293	.1154826	.1329359	.1503892	.1678425	37	.0001794
38	.0983202	.1157735	.1332268	.1506801	.1681334	38	.0001842
39	.0986111	.1160644	.1335177	.1509710	.1684243	39	.0001891
40	.0989020	.1163553	.1338086	.1512619	.1687152	40	.0001939
41	.0991929	.1166462	.1340995	.1515528	.1690060	41	.0001988
42	.0994838	.1169371	.1343904	.1518436	.1692969	42	.0002036
43	.0997747	.1172279	.1346812	.1521345	.1695878	43	.0002085
44	.1000655	.1175188	.1349721	.1524254	.1698787	44	.0002133
45	.1003564	.1178097	.1352630	.1527163	.1701696	45	.0002182
46	.1006473	.1181006	.1355539	.1530072	.1704605	46	.0002230
47	.1009382	.1183915	.1358448	.1532981	.1707514	47	.0002279
48	.1012291	.1186824	.1361357	.1535890	.1710423	48	.0002327
49	.1015200	.1189733	.1364266	.1538799	.1713332	49	.0002376
50	.1018109	.1192642	.1367175	.1541708	.1716240	50	.0002424
51	.1021018	.1195551	.1370083	.1544616	.1719149	51	.0002473
52	.1023926	.1198459	.1372992	.1547525	.1722058	52	.0002521
53	.1026835	.1201368	.1375901	.1550434	.1724967	53	.0002570
54	.1029744	.1204277	.1378810	.1553343	.1727876	54	.0002618
55	.1032653	.1207186	.1381719	.1556252	.1730785	55	.0002666
56	.1035562	.1210095	.1384628	.1559161	.1733694	56	.0002715
57	.1038471	.1213004	.1387537	.1562070	.1736603	57	.0002763
58	.1041380	.1215913	.1390446	.1564979	.1739511	58	.0002812
59	.1044289	.1218822	.1393355	.1567887	.1742420	59	.0002860
60	.1047198	.1221730	.1396263	.1570796	.1745329	60	.0002909

TABLE 2. LENGTHS OF CIRCULAR ARCS; RADIUS = 1

'	10°	11°	12°	13°	14°	''	
0	.1745329	.1919862	.2094395	.2268928	.2443461	0	.0000000
1	.1748238	.1922771	.2097304	.2271837	.2446370	1	.0000048
2	.1751147	.1925680	.2100213	.2274746	.2449279	2	.0000097
3	.1754056	.1928589	.2103122	.2277655	.2452188	3	.0000145
4	.1756965	.1931498	.2106031	.2280564	.2455096	4	.0000194
5	.1759874	.1934407	.2108940	.2283472	.2458005	5	.0000242
6	.1762783	.1937315	.2111848	.2286381	.2460914	6	.0000291
7	.1765691	.1940224	.2114757	.2289290	.2463823	7	.0000339
8	.1768600	.1943133	.2117666	.2292199	.2466732	8	.0000388
9	.1771509	.1946042	.2120575	.2295108	.2469641	9	.0000436
10	.1774418	.1948951	.2123484	.2298017	.2472550	10	.0000485
11	.1777327	.1951860	.2126393	.2300926	.2475459	11	.0000533
12	.1780236	.1954769	.2129302	.2303835	.2478368	12	.0000582
13	.1783145	.1957678	.2132211	.2306743	.2481276	13	.0000630
14	.1786054	.1960587	.2135119	.2309652	.2484185	14	.0000679
15	.1788962	.1963495	.2138028	.2312561	.2487094	15	.0000727
16	.1791871	.1966404	.2140937	.2315470	.2490003	16	.0000776
17	.1794780	.1969313	.2143846	.2318379	.2492912	17	.0000824
18	.1797689	.1972222	.2146755	.2321288	.2495821	18	.0000873
19	.1800598	.1975131	.2149664	.2324197	.2498730	19	.0000921
20	.1803507	.1978040	.2152573	.2327106	.2501639	20	.0000970
21	.1806416	.1980949	.2155482	.2330015	.2504547	21	.0001018
22	.1809325	.1983858	.2158391	.2332923	.2507456	22	.0001067
23	.1812234	.1986766	.2161299	.2335832	.2510365	23	.0001115
24	.1815142	.1989675	.2164208	.2338741	.2513274	24	.0001164
25	.1818051	.1992584	.2167117	.2341650	.2516183	25	.0001212
26	.1820960	.1995493	.2170026	.2344559	.2519092	26	.0001261
27	.1823869	.1998402	.2172935	.2347468	.2522001	27	.0001309
28	.1826778	.2001311	.2175844	.2350377	.2524910	28	.0001357
29	.1829687	.2004220	.2178753	.2353286	.2527819	29	.0001406
30	.1832596	.2007129	.2181662	.2356194	.2530727	30	.0001454
31	.1835505	.2010038	.2184570	.2359103	.2533636	31	.0001503
32	.1838413	.2012946	.2187479	.2362012	.2536545	32	.0001551
33	.1841322	.2015855	.2190388	.2364921	.2539454	33	.0001600
34	.1844231	.2018764	.2193297	.2367830	.2542363	34	.0001648
35	.1847140	.2021673	.2196206	.2370739	.2545272	35	.0001697
36	.1850049	.2024582	.2199115	.2373648	.2548181	36	.0001745
37	.1852958	.2027491	.2202024	.2376557	.2551090	37	.0001794
38	.1855867	.2030400	.2204933	.2379466	.2553998	38	.0001842
39	.1858776	.2033309	.2207842	.2382374	.2556907	39	.0001891
40	.1861685	.2036217	.2210750	.2385283	.2559816	40	.0001939
41	.1864593	.2039126	.2213659	.2388192	.2562725	41	.0001988
42	.1867502	.2042035	.2216568	.2391101	.2565634	42	.0002036
43	.1870411	.2044944	.2219477	.2394010	.2568543	43	.0002085
44	.1873320	.2047853	.2222386	.2396919	.2571452	44	.0002133
45	.1876229	.2050762	.2225295	.2399828	.2574361	45	.0002182
46	.1879138	.2053671	.2228204	.2402737	.2577270	46	.0002230
47	.1882047	.2056580	.2231113	.2405645	.2580178	47	.0002279
48	.1884956	.2059489	.2234021	.2408554	.2583087	48	.0002327
49	.1887864	.2062397	.2236930	.2411463	.2585996	49	.0002376
50	.1890773	.2065306	.2239839	.2414372	.2588905	50	.0002424
51	.1893682	.2068215	.2242748	.2417281	.2591814	51	.0002473
52	.1896591	.2071124	.2245657	.2420190	.2594723	52	.0002521
53	.1899500	.2074033	.2248566	.2423099	.2597632	53	.0002570
54	.1902409	.2076942	.2251475	.2426008	.2600541	54	.0002618
55	.1905318	.2079851	.2254384	.2428917	.2603449	55	.0002666
56	.1908227	.2082760	.2257292	.2431825	.2606358	56	.0002715
57	.1911136	.2085668	.2260201	.2434734	.2609267	57	.0002763
58	.1914044	.2088577	.2263110	.2437643	.2612176	58	.0002812
59	.1916953	.2091486	.2266019	.2440552	.2615085	59	.0002860
60	.1919862	.2094395	.2268928	.2443461	.2617994	60	.0002909

TABLE 2. LENGTHS OF CIRCULAR ARCS; RADIUS = 1

'	15°	16°	17°	18°	19°	"	
0	.2617994	.2792527	.2967060	.3141593	.3316126	0	.0000000
1	.2620903	.2795436	.2969969	.3144502	.3319034	1	.0000048
2	.2623812	.2798345	.2972877	.3147410	.3321943	2	.0000097
3	.2626721	.2801253	.2975786	.3150319	.3324852	3	.0000145
4	.2629629	.2804162	.2978695	.3153228	.3327761	4	.0000194
5	.2632538	.2807071	.2981604	.3156137	.3330670	5	.0000242
6	.2635447	.2809980	.2984513	.3159046	.3333579	6	.0000291
7	.2638356	.2812889	.2987422	.3161955	.3336488	7	.0000339
8	.2641265	.2815798	.2990331	.3164864	.3339397	8	.0000388
9	.2644174	.2818707	.2993240	.3167773	.3342306	9	.0000436
10	.2647083	.2821616	.2996149	.3170681	.3345214	10	.0000485
11	.2649992	.2824525	.2999057	.3173590	.3348123	11	.0000533
12	.2652900	.2827433	.3001966	.3176499	.3351032	12	.0000582
13	.2655809	.2830342	.3004875	.3179408	.3353941	13	.0000630
14	.2658718	.2833251	.3007784	.3182317	.3356850	14	.0000679
15	.2661627	.2836160	.3010693	.3185226	.3359759	15	.0000727
16	.2664536	.2839069	.3013602	.3188135	.3362668	16	.0000776
17	.2667445	.2841978	.3016511	.3191044	.3365577	17	.0000824
18	.2670354	.2844887	.3019420	.3193953	.3368485	18	.0000873
19	.2673263	.2847796	.3022328	.3196861	.3371394	19	.0000921
20	.2676172	.2850704	.3025237	.3199770	.3374303	20	.0000970
21	.2679080	.2853613	.3028146	.3202679	.3377212	21	.0001018
22	.2681989	.2856522	.3031055	.3205588	.3380121	22	.0001067
23	.2684898	.2859431	.3033964	.3208497	.3383030	23	.0001115
24	.2687807	.2862340	.3036873	.3211406	.3385939	24	.0001164
25	.2690716	.2865249	.3039782	.3214315	.3388848	25	.0001212
26	.2693625	.2868158	.3042691	.3217224	.3391757	26	.0001261
27	.2696534	.2871067	.3045600	.3220132	.3394665	27	.0001309
28	.2699443	.2873976	.3048508	.3223041	.3397574	28	.0001357
29	.2702351	.2876884	.3051417	.3225950	.3400483	29	.0001406
30	.2705260	.2879793	.3054326	.3228859	.3403392	30	.0001454
31	.2708169	.2882702	.3057235	.3231767	.3406301	31	.0001503
32	.2711078	.2885611	.3060144	.3234677	.3409210	32	.0001551
33	.2713987	.2888520	.3063053	.3237586	.3412119	33	.0001600
34	.2716896	.2891429	.3065962	.3240495	.3415028	34	.0001648
35	.2719805	.2894338	.3068871	.3243404	.3417936	35	.0001697
36	.2722714	.2897247	.3071779	.3246312	.3420845	36	.0001745
37	.2725623	.2900155	.3074688	.3249221	.3423754	37	.0001794
38	.2728531	.2903064	.3077597	.3252130	.3426663	38	.0001842
39	.2731440	.2905973	.3080506	.3255039	.3429572	39	.0001891
40	.2734349	.2908882	.3083415	.3257948	.3432481	40	.0001939
41	.2737258	.2911791	.3086324	.3260857	.3435390	41	.0001988
42	.2740167	.2914700	.3089233	.3263766	.3438299	42	.0002036
43	.2743076	.2917609	.3092142	.3266675	.3441208	43	.0002085
44	.2745985	.2920518	.3095051	.3269583	.3444116	44	.0002133
45	.2748894	.2923426	.3097959	.3272492	.3447025	45	.0002182
46	.2751802	.2926335	.3100868	.3275401	.3449934	46	.0002230
47	.2754711	.2929244	.3103777	.3278310	.3452843	47	.0002279
48	.2757620	.2932153	.3106686	.3281219	.3455752	48	.0002327
49	.2760529	.2935062	.3109595	.3284128	.3458661	49	.0002376
50	.2763438	.2937971	.3112504	.3287037	.3461570	50	.0002424
51	.2766347	.2940880	.3115413	.3289946	.3464479	51	.0002473
52	.2769256	.2943789	.3118322	.3292855	.3467387	52	.0002521
53	.2772165	.2946698	.3121230	.3295763	.3470296	53	.0002570
54	.2775074	.2949606	.3124139	.3298672	.3473205	54	.0002618
55	.2777982	.2952515	.3127048	.3301581	.3476114	55	.0002666
56	.2780891	.2955424	.3129957	.3304490	.3479023	56	.0002715
57	.2783800	.2958333	.3132866	.3307399	.3481932	57	.0002763
58	.2786709	.2961242	.3135775	.3310308	.3484841	58	.0002812
59	.2789618	.2964151	.3138684	.3313217	.3487750	59	.0002860
60	.2792527	.2967060	.3141593	.3316126	.3490659	60	.0002909

TABLE 2. LENGTHS OF CIRCULAR ARCS; RADIUS = 1

'	20°	21°	22°	23°	24°	"	
0	.3490659	.3665191	.3839724	.4014257	.4188790	0	.0000000
1	.3493567	.3668100	.3842633	.4017166	.4191699	1	.0000048
2	.3496476	.3671009	.3845542	.4020075	.4194608	2	.0000097
3	.3499385	.3673918	.3848451	.4022984	.4197517	3	.0000145
4	.3502294	.3676827	.3851360	.4025893	.4200426	4	.0000194
5	.3505203	.3679736	.3854269	.4028802	.4203335	5	.0000242
6	.3508112	.3682645	.3857178	.4031711	.4206243	6	.0000291
7	.3511021	.3685554	.3860087	.4034619	.4209152	7	.0000339
8	.3513930	.3688462	.3862995	.4037528	.4212061	8	.0000388
9	.3516838	.3691371	.3865904	.4040437	.4214970	9	.0000436
10	.3519747	.3694280	.3868813	.4043346	.4217879	10	.0000485
11	.3522656	.3697189	.3871722	.4046255	.4220788	11	.0000533
12	.3525565	.3700098	.3874631	.4049164	.4223697	12	.0000582
13	.3528474	.3703007	.3877540	.4052073	.4226606	13	.0000630
14	.3531383	.3705916	.3880449	.4054982	.4229515	14	.0000679
15	.3534292	.3708825	.3883358	.4057891	.4232423	15	.0000727
16	.3537201	.3711734	.3886266	.4060799	.4235332	16	.0000776
17	.3540109	.3714642	.3889175	.4063708	.4238241	17	.0000824
18	.3543018	.3717551	.3892084	.4066617	.4241150	18	.0000873
19	.3545927	.3720460	.3894993	.4069526	.4244059	19	.0000921
20	.3548836	.3723369	.3897902	.4072435	.4246968	20	.0000970
21	.3551745	.3726278	.3900811	.4075344	.4249877	21	.0001018
22	.3554654	.3729187	.3903720	.4078253	.4252786	22	.0001067
23	.3557563	.3732096	.3906629	.4081162	.4255694	23	.0001115
24	.3560472	.3735005	.3909538	.4084070	.4258603	24	.0001164
25	.3563381	.3737913	.3912446	.4086979	.4261512	25	.0001212
26	.3566289	.3740822	.3915355	.4089888	.4264421	26	.0001261
27	.3569198	.3743731	.3918264	.4092797	.4267330	27	.0001309
28	.3572107	.3746640	.3921173	.4095706	.4270239	28	.0001357
29	.3575016	.3749549	.3924082	.4098615	.4273148	29	.0001406
30	.3577925	.3752458	.3926991	.4101524	.4276057	30	.0001454
31	.3580834	.3755367	.3929900	.4104433	.4278966	31	.0001503
32	.3583743	.3758276	.3932809	.4107342	.4281874	32	.0001551
33	.3586652	.3761185	.3935717	.4110250	.4284783	33	.0001600
34	.3589560	.3764093	.3938626	.4113159	.4287692	34	.0001648
35	.3592469	.3767002	.3941535	.4116068	.4290601	35	.0001697
36	.3595378	.3769911	.3944444	.4118977	.4293510	36	.0001745
37	.3598287	.3772820	.3947353	.4121886	.4296419	37	.0001794
38	.3601196	.3775729	.3950262	.4124795	.4299328	38	.0001842
39	.3604105	.3778638	.3953171	.4127704	.4302237	39	.0001891
40	.3607014	.3781547	.3956080	.4130613	.4305145	40	.0001939
41	.3609923	.3784456	.3958989	.4133521	.4308054	41	.0001988
42	.3612832	.3787364	.3961897	.4136430	.4310963	42	.0002036
43	.3615740	.3790273	.3964806	.4139339	.4313872	43	.0002085
44	.3618649	.3793182	.3967715	.4142248	.4316781	44	.0002133
45	.3621558	.3796091	.3970624	.4145157	.4319690	45	.0002182
46	.3624467	.3799000	.3973533	.4148066	.4322599	46	.0002230
47	.3627376	.3801909	.3976442	.4150975	.4325508	47	.0002279
48	.3630285	.3804818	.3979351	.4153884	.4328417	48	.0002327
49	.3633194	.3807727	.3982260	.4156793	.4331325	49	.0002376
50	.3636103	.3810636	.3985168	.4159701	.4334234	50	.0002424
51	.3639011	.3813544	.3988077	.4162610	.4337143	51	.0002473
52	.3641920	.3816453	.3990986	.4165519	.4340052	52	.0002521
53	.3644829	.3819362	.3993895	.4168428	.4342961	53	.0002570
54	.3647738	.3822271	.3996804	.4171337	.4345870	54	.0002618
55	.3650647	.3825180	.3999713	.4174246	.4348779	55	.0002666
56	.3653556	.3828089	.4002622	.4177155	.4351688	56	.0002715
57	.3656465	.3830998	.4005531	.4180064	.4354596	57	.0002763
58	.3659374	.3833907	.4008440	.4182972	.4357505	58	.0002812
59	.3662283	.3836815	.4011348	.4185881	.4360414	59	.0002860
60	.3665191	.3839724	.4014257	.4188790	.4363323	60	.0002909

TABLE 2. LENGTHS OF CIRCULAR ARCS; RADIUS = 1

	25°	26°	27°	28°	29°	''	
0	.4363323	.4537856	.4712389	.4886922	.5061455	0	.0000000
1	.4366232	.4540765	.4715298	.4889831	.5064364	1	.0000048
2	.4369141	.4543674	.4718207	.4892740	.5067273	2	.0000097
3	.4372050	.4546583	.4721116	.4895649	.5070181	3	.0000145
4	.4374959	.4549492	.4724025	.4898557	.5073090	4	.0000194
5	.4377868	.4552400	.4726933	.4901466	.5075999	5	.0000242
6	.4380776	.4555309	.4729842	.4904375	.5078908	6	.0000291
7	.4383685	.4558218	.4732751	.4907284	.5081817	7	.0000339
8	.4386594	.4561127	.4735660	.4910193	.5084726	8	.0000388
9	.4389503	.4564036	.4738569	.4913102	.5087635	9	.0000436
10	.4392412	.4566945	.4741478	.4916011	.5090544	10	.0000485
11	.4395321	.4569854	.4744387	.4918920	.5093453	11	.0000533
12	.4398230	.4572763	.4747296	.4921828	.5096361	12	.0000582
13	.4401139	.4575672	.4750204	.4924737	.5099270	13	.0000630
14	.4404047	.4578580	.4753113	.4927646	.5102179	14	.0000679
15	.4406956	.4581489	.4756022	.4930555	.5105088	15	.0000727
16	.4409865	.4584398	.4758931	.4933464	.5107997	16	.0000776
17	.4412774	.4587307	.4761840	.4936373	.5110906	17	.0000824
18	.4415683	.4590216	.4764749	.4939282	.5113815	18	.0000873
19	.4418592	.4593125	.4767658	.4942191	.5116724	19	.0000921
20	.4421501	.4596034	.4770567	.4945100	.5119632	20	.0000970
21	.4424410	.4598943	.4773476	.4948008	.5122541	21	.0001018
22	.4427319	.4601851	.4776384	.4950917	.5125450	22	.0001067
23	.4430227	.4604760	.4779293	.4953826	.5128359	23	.0001115
24	.4433136	.4607669	.4782202	.4956735	.5131268	24	.0001164
25	.4436045	.4610578	.4785111	.4959644	.5134177	25	.0001212
26	.4438954	.4613487	.4788020	.4962553	.5137086	26	.0001261
27	.4441863	.4616396	.4790929	.4965462	.5139995	27	.0001309
28	.4444772	.4619305	.4793838	.4968371	.5142904	28	.0001357
29	.4447681	.4622214	.4796747	.4971279	.5145812	29	.0001406
30	.4450590	.4625123	.4799655	.4974188	.5148721	30	.0001454
31	.4453498	.4628031	.4802564	.4977097	.5151630	31	.0001503
32	.4456407	.4630940	.4805473	.4980006	.5154539	32	.0001551
33	.4459316	.4633849	.4808382	.4982915	.5157448	33	.0001600
34	.4462225	.4636758	.4811291	.4985824	.5160357	34	.0001648
35	.4465134	.4639667	.4814200	.4988733	.5163266	35	.0001697
36	.4468043	.4642576	.4817109	.4991642	.5166175	36	.0001745
37	.4470952	.4645485	.4820018	.4994551	.5169083	37	.0001794
38	.4473861	.4648394	.4822926	.4997459	.5171992	38	.0001842
39	.4476770	.4651302	.4825835	.5000368	.5174901	39	.0001891
40	.4479678	.4654211	.4828744	.5003277	.5177810	40	.0001939
41	.4482587	.4657120	.4831653	.5006186	.5180719	41	.0001988
42	.4485496	.4660029	.4834562	.5009095	.5183628	42	.0002036
43	.4488405	.4662938	.4837471	.5012004	.5186537	43	.0002085
44	.4491314	.4665847	.4840380	.5014913	.5189446	44	.0002133
45	.4494223	.4668756	.4843289	.5017822	.5192355	45	.0002182
46	.4497132	.4671665	.4846198	.5020730	.5195263	46	.0002230
47	.4500041	.4674574	.4849106	.5023639	.5198172	47	.0002279
48	.4502949	.4677482	.4852015	.5026548	.5201081	48	.0002327
49	.4505858	.4680391	.4854924	.5029457	.5203990	49	.0002376
50	.4508767	.4683300	.4857833	.5032366	.5206899	50	.0002424
51	.4511676	.4686209	.4860742	.5035275	.5209808	51	.0002473
52	.4514585	.4689118	.4863651	.5038184	.5212717	52	.0002521
53	.4517494	.4692027	.4866560	.5041093	.5215626	53	.0002570
54	.4520403	.4694936	.4869469	.5044002	.5218534	54	.0002618
55	.4523312	.4697845	.4872377	.5046910	.5221443	55	.0002666
56	.4526221	.4700753	.4875286	.5049819	.5224352	56	.0002715
57	.4529129	.4703662	.4878195	.5052728	.5227261	57	.0002763
58	.4532038	.4706571	.4881104	.5055637	.5230170	58	.0002812
59	.4534947	.4709480	.4884013	.5058546	.5233079	59	.0002860
60	.4537856	.4712389	.4886922	.5061455	.5235988	60	.0002909

TABLE 2. LENGTHS OF CIRCULAR ARCS; RADIUS = 1

'	30°	31°	32°	33°	34°	"	
0	.5235988	.5410521	.5585054	.5759587	.5934119	0	.0000000
1	.5238897	.5413430	.5587962	.5762495	.5937028	1	.0000048
2	.5241806	.5416338	.5590871	.5765404	.5939937	2	.0000097
3	.5244714	.5419247	.5593780	.5768313	.5942846	3	.0000145
4	.5247623	.5422156	.5596689	.5771222	.5945755	4	.0000194
5	.5250532	.5425065	.5599598	.5774131	.5948664	5	.0000242
6	.5253441	.5427974	.5602507	.5777040	.5951573	6	.0000291
7	.5256350	.5430883	.5605416	.5779949	.5954482	7	.0000339
8	.5259259	.5433792	.5608325	.5782858	.5957391	8	.0000388
9	.5262168	.5436701	.5611234	.5785766	.5960299	9	.0000436
10	.5265077	.5439610	.5614142	.5788675	.5963208	10	.0000485
11	.5267985	.5442518	.5617051	.5791584	.5966117	11	.0000533
12	.5270894	.5445427	.5619960	.5794493	.5969026	12	.0000582
13	.5273803	.5448336	.5622869	.5797402	.5971935	13	.0000630
14	.5276712	.5451245	.5625778	.5800311	.5974844	14	.0000679
15	.5279621	.5454154	.5628687	.5803220	.5977753	15	.0000727
16	.5282530	.5457063	.5631596	.5806129	.5980662	16	.0000776
17	.5285439	.5459972	.5634505	.5809038	.5983570	17	.0000824
18	.5288348	.5462881	.5637413	.5811946	.5986479	18	.0000873
19	.5291257	.5465789	.5640322	.5814855	.5989388	19	.0000921
20	.5294165	.5468698	.5643231	.5817764	.5992297	20	.0000970
21	.5297074	.5471607	.5646140	.5820673	.5995206	21	.0001018
22	.5299983	.5474516	.5649049	.5823582	.5998115	22	.0001067
23	.5302892	.5477425	.5651958	.5826491	.6001024	23	.0001115
24	.5305801	.5480334	.5654867	.5829400	.6003933	24	.0001164
25	.5308710	.5483243	.5657776	.5832309	.6006842	25	.0001212
26	.5311619	.5486152	.5660685	.5835217	.6009750	26	.0001261
27	.5314527	.5489060	.5663593	.5838126	.6012659	27	.0001309
28	.5317436	.5491969	.5666502	.5841035	.6015568	28	.0001357
29	.5320345	.5494878	.5669411	.5843944	.6018477	29	.0001406
30	.5323254	.5497787	.5672320	.5846853	.6021386	30	.0001454
31	.5326163	.5500696	.5675229	.5849762	.6024295	31	.0001503
32	.5329072	.5503605	.5678138	.5852671	.6027204	32	.0001551
33	.5331981	.5506514	.5681047	.5855580	.6030113	33	.0001600
34	.5334890	.5509423	.5683956	.5858489	.6033021	34	.0001648
35	.5337799	.5512332	.5686864	.5861397	.6035930	35	.0001697
36	.5340708	.5515240	.5689773	.5864306	.6038839	36	.0001745
37	.5343616	.5518149	.5692682	.5867215	.6041748	37	.0001794
38	.5346525	.5521058	.5695591	.5870124	.6044657	38	.0001842
39	.5349434	.5523967	.5698500	.5873033	.6047566	39	.0001891
40	.5352343	.5526876	.5701409	.5875942	.6050475	40	.0001939
41	.5355252	.5529785	.5704318	.5878851	.6053384	41	.0001988
42	.5358161	.5532694	.5707227	.5881760	.6056293	42	.0002036
43	.5361070	.5535603	.5710136	.5884668	.6059201	43	.0002085
44	.5363979	.5538511	.5713044	.5887577	.6062110	44	.0002133
45	.5366887	.5541420	.5715953	.5890486	.6065019	45	.0002182
46	.5369796	.5544329	.5718862	.5893395	.6067928	46	.0002230
47	.5372705	.5547238	.5721771	.5896304	.6070837	47	.0002279
48	.5375614	.5550147	.5724680	.5899213	.6073746	48	.0002327
49	.5378523	.5553056	.5727589	.5902122	.6076655	49	.0002376
50	.5381432	.5555965	.5730498	.5905031	.6079564	50	.0002424
51	.5384341	.5558874	.5733407	.5907940	.6082472	51	.0002473
52	.5387250	.5561783	.5736315	.5910848	.6085381	52	.0002521
53	.5390159	.5564691	.5739224	.5913757	.6088290	53	.0002570
54	.5393067	.5567600	.5742133	.5916666	.6091199	54	.0002618
55	.5395976	.5570509	.5745042	.5919575	.6094108	55	.0002666
56	.5398885	.5573418	.5747951	.5922484	.6097017	56	.0002715
57	.5401794	.5576327	.5750860	.5925393	.6099926	57	.0002763
58	.5404703	.5579236	.5753769	.5928302	.6102835	58	.0002812
59	.5407612	.5582145	.5756678	.5931211	.6105743	59	.0002860
60	.5410521	.5585054	.5759587	.5934119	.6108652	60	.0002909

TABLE 2. LENGTHS OF CIRCULAR ARCS; RADIUS = 1

	35°	36°	37°	38°	39°	"	
0	.6108652	.6283185	.6457718	.6632251	.6806784	0	.0000000
1	.6111561	.6286094	.6460627	.6635160	.6809693	1	.0000048
2	.6114470	.6289003	.6463536	.6638069	.6812602	2	.0000097
3	.6117379	.6291912	.6466445	.6640978	.6815511	3	.0000145
4	.6120288	.6294821	.6469354	.6643887	.6818420	4	.0000194
5	.6123197	.6297730	.6472263	.6646796	.6821328	5	.0000242
6	.6126106	.6300639	.6475172	.6649704	.6824237	6	.0000291
7	.6129015	.6303547	.6478080	.6652613	.6827146	7	.0000339
8	.6131923	.6306456	.6480989	.6655522	.6830055	8	.0000388
9	.6134832	.6309365	.6483898	.6658431	.6832964	9	.0000436
10	.6137741	.6312274	.6486807	.6661340	.6835873	10	.0000485
11	.6140650	.6315183	.6489716	.6664249	.6838782	11	.0000533
12	.6143559	.6318092	.6492625	.6667158	.6841691	12	.0000582
13	.6146468	.6321001	.6495534	.6670067	.6844600	13	.0000630
14	.6149377	.6323910	.6498443	.6672976	.6847508	14	.0000679
15	.6152286	.6326819	.6501351	.6675884	.6850417	15	.0000727
16	.6155194	.6329727	.6504260	.6678793	.6853326	16	.0000776
17	.6158103	.6332636	.6507169	.6681702	.6856235	17	.0000824
18	.6161012	.6335545	.6510078	.6684611	.6859144	18	.0000873
19	.6163921	.6338454	.6512987	.6687520	.6862053	19	.0000921
20	.6166830	.6341363	.6515896	.6690429	.6864962	20	.0000970
21	.6169739	.6344272	.6518805	.6693338	.6867871	21	.0001018
22	.6172648	.6347181	.6521714	.6696247	.6870779	22	.0001067
23	.6175557	.6350090	.6524623	.6699155	.6873688	23	.0001115
24	.6178466	.6352998	.6527531	.6702064	.6876597	24	.0001164
25	.6181374	.6355907	.6530440	.6704973	.6879506	25	.0001212
26	.6184283	.6358816	.6533349	.6707882	.6882415	26	.0001261
27	.6187192	.6361725	.6536258	.6710791	.6885324	27	.0001309
28	.6190101	.6364634	.6539167	.6713700	.6888233	28	.0001357
29	.6193010	.6367543	.6542076	.6716609	.6891142	29	.0001406
30	.6195919	.6370452	.6544985	.6719518	.6894051	30	.0001454
31	.6198828	.6373361	.6547894	.6722427	.6896959	31	.0001503
32	.6201737	.6376270	.6550803	.6725335	.6899868	32	.0001551
33	.6204645	.6379178	.6553711	.6728244	.6902777	33	.0001600
34	.6207554	.6382087	.6556620	.6731153	.6905686	34	.0001648
35	.6210463	.6384996	.6559529	.6734062	.6908595	35	.0001697
36	.6213372	.6387905	.6562438	.6736971	.6911504	36	.0001745
37	.6216281	.6390814	.6565347	.6739880	.6914413	37	.0001794
38	.6219190	.6393723	.6568256	.6742789	.6917322	38	.0001842
39	.6222099	.6396632	.6571165	.6745698	.6920230	39	.0001891
40	.6225008	.6399541	.6574074	.6748606	.6923139	40	.0001939
41	.6227917	.6402449	.6576982	.6751515	.6926048	41	.0001988
42	.6230825	.6405358	.6579891	.6754424	.6928957	42	.0002036
43	.6233734	.6408267	.6582800	.6757333	.6931866	43	.0002085
44	.6236643	.6411176	.6585709	.6760242	.6934775	44	.0002133
45	.6239552	.6414085	.6588618	.6763151	.6937684	45	.0002182
46	.6242461	.6416994	.6591527	.6766060	.6940593	46	.0002230
47	.6245370	.6419903	.6594436	.6768969	.6943502	47	.0002279
48	.6248279	.6422812	.6597345	.6771877	.6946410	48	.0002327
49	.6251188	.6425721	.6600253	.6774786	.6949319	49	.0002376
50	.6254096	.6428629	.6603162	.6777695	.6952228	50	.0002424
51	.6257005	.6431538	.6606071	.6780604	.6955137	51	.0002473
52	.6259914	.6434447	.6608980	.6783513	.6958046	52	.0002521
53	.6262823	.6437356	.6611889	.6786422	.6960955	53	.0002570
54	.6265732	.6440265	.6614798	.6789331	.6963864	54	.0002618
55	.6268641	.6443174	.6617707	.6792240	.6966773	55	.0002666
56	.6271550	.6446083	.6620616	.6795149	.6969681	56	.0002715
57	.6274459	.6448992	.6623525	.6798057	.6972590	57	.0002763
58	.6277368	.6451900	.6626433	.6800966	.6975499	58	.0002812
59	.6280276	.6454809	.6629342	.6803875	.6978408	59	.0002860
60	.6283185	.6457718	.6632251	.6806784	.6981317	60	.0002909

TABLE 2. LENGTHS OF CIRCULAR ARCS; RADIUS = 1

'	40°	41°	42°	43°	44°	"	
0	.6981317	.7155850	.7330383	.7504916	.7679449	0	.0000000
1	.6984226	.7158759	.7333292	.7507825	.7682358	1	.0000048
2	.6987135	.7161668	.7336201	.7510734	.7685266	2	.0000097
3	.6990044	.7164577	.7339110	.7513642	.7688175	3	.0000145
4	.6992953	.7167485	.7342018	.7516551	.7691084	4	.0000194
5	.6995861	.7170394	.7344927	.7519460	.7693993	5	.0000242
6	.6998770	.7173303	.7347836	.7522369	.7696902	6	.0000291
7	.7001679	.7176212	.7350745	.7525278	.7699811	7	.0000339
8	.7004588	.7179121	.7353654	.7528187	.7702720	8	.0000388
9	.7007497	.7182030	.7356563	.7531096	.7705629	9	.0000436
10	.7010406	.7184939	.7359472	.7534005	.7708538	10	.0000485
11	.7013315	.7187848	.7362381	.7536913	.7711446	11	.0000533
12	.7016224	.7190757	.7365289	.7539822	.7714355	12	.0000582
13	.7019132	.7193665	.7368198	.7542731	.7717264	13	.0000630
14	.7022041	.7196574	.7371107	.7545640	.7720173	14	.0000679
15	.7024950	.7199483	.7374016	.7548549	.7723082	15	.0000727
16	.7027859	.7202392	.7376925	.7551458	.7725991	16	.0000776
17	.7030768	.7205301	.7379834	.7554367	.7728900	17	.0000824
18	.7033677	.7208210	.7382743	.7557276	.7731809	18	.0000873
19	.7036586	.7211119	.7385652	.7560185	.7734717	19	.0000921
20	.7039495	.7214028	.7388561	.7563093	.7737626	20	.0000970
21	.7042404	.7216936	.7391469	.7566002	.7740535	21	.0001018
22	.7045312	.7219845	.7394378	.7568911	.7743444	22	.0001067
23	.7048221	.7222754	.7397287	.7571820	.7746353	23	.0001115
24	.7051130	.7225663	.7400196	.7574729	.7749262	24	.0001164
25	.7054039	.7228572	.7403105	.7577638	.7752171	25	.0001212
26	.7056948	.7231481	.7406014	.7580547	.7755080	26	.0001261
27	.7059857	.7234390	.7408923	.7583456	.7757989	27	.0001309
28	.7062766	.7237299	.7411832	.7586364	.7760897	28	.0001357
29	.7065675	.7240208	.7414740	.7589273	.7763806	29	.0001406
30	.7068583	.7243116	.7417649	.7592182	.7766715	30	.0001454
31	.7071492	.7246025	.7420558	.7595091	.7769624	31	.0001503
32	.7074401	.7248934	.7423467	.7598000	.7772533	32	.0001551
33	.7077310	.7251843	.7426376	.7600909	.7775442	33	.0001600
34	.7080219	.7254752	.7429285	.7603818	.7778351	34	.0001648
35	.7083128	.7257661	.7432194	.7606727	.7781260	35	.0001697
36	.7086037	.7260570	.7435103	.7609636	.7784168	36	.0001745
37	.7088946	.7263479	.7438011	.7612544	.7787077	37	.0001794
38	.7091855	.7266387	.7440920	.7615453	.7789986	38	.0001842
39	.7094763	.7269296	.7443829	.7618362	.7792895	39	.0001891
40	.7097672	.7272205	.7446738	.7621271	.7795804	40	.0001939
41	.7100581	.7275114	.7449647	.7624180	.7798713	41	.0001988
42	.7103490	.7278023	.7452556	.7627089	.7801622	42	.0002036
43	.7106399	.7280932	.7455465	.7629998	.7804531	43	.0002085
44	.7109308	.7283841	.7458374	.7632907	.7807440	44	.0002133
45	.7112217	.7286750	.7461283	.7635815	.7810348	45	.0002182
46	.7115126	.7289659	.7464191	.7638724	.7813257	46	.0002230
47	.7118034	.7292567	.7467100	.7641633	.7816166	47	.0002279
48	.7120943	.7295476	.7470009	.7644542	.7819075	48	.0002327
49	.7123852	.7298385	.7472918	.7647451	.7821984	49	.0002376
50	.7126761	.7301294	.7475827	.7650360	.7824893	50	.0002424
51	.7129670	.7304203	.7478736	.7653269	.7827802	51	.0002473
52	.7132579	.7307112	.7481645	.7656178	.7830711	52	.0002521
53	.7135488	.7310021	.7484554	.7659087	.7833619	53	.0002570
54	.7138397	.7312930	.7487462	.7661995	.7836528	54	.0002618
55	.7141306	.7315838	.7490371	.7664904	.7839437	55	.0002666
56	.7144214	.7318747	.7493280	.7667813	.7842346	56	.0002715
57	.7147123	.7321656	.7496189	.7670722	.7845255	57	.0002763
58	.7150032	.7324565	.7499098	.7673631	.7848164	58	.0002812
59	.7152941	.7327474	.7502007	.7676540	.7851073	59	.0002860
60	.7155850	.7330383	.7504916	.7679449	.7853982	60	.0002909

TABLE 2. LENGTHS OF CIRCULAR ARCS; RADIUS = 1

'	45°	46°	47°	48°	49°	"	
0	.7853982	.8028515	.8203047	.8377580	.8552113	0	.0000000
1	.7856891	.8031423	.8205956	.8380489	.8555022	1	.0000048
2	.7859799	.8034332	.8208865	.8383398	.8557931	2	.0000097
3	.7862708	.8037241	.8211774	.8386307	.8560840	3	.0000145
4	.7865617	.8040150	.8214683	.8389216	.8563749	4	.0000194
5	.7868526	.8043059	.8217592	.8392125	.8566658	5	.0000242
6	.7871435	.8045968	.8220501	.8395034	.8569567	6	.0000291
7	.7874344	.8048877	.8223410	.8397943	.8572476	7	.0000339
8	.7877253	.8051786	.8226319	.8400851	.8575384	8	.0000388
9	.7880162	.8054694	.8229227	.8403760	.8578293	9	.0000436
10	.7883070	.8057603	.8232136	.8406669	.8581202	10	.0000485
11	.7885979	.8060512	.8235045	.8409578	.8584111	11	.0000533
12	.7888888	.8063421	.8237954	.8412487	.8587020	12	.0000582
13	.7891797	.8066330	.8240863	.8415396	.8589929	13	.0000630
14	.7894706	.8069239	.8243772	.8418305	.8592838	14	.0000679
15	.7897615	.8072148	.8246681	.8421214	.8595747	15	.0000727
16	.7900524	.8075057	.8249590	.8424123	.8598655	16	.0000776
17	.7903433	.8077966	.8252498	.8427031	.8601564	17	.0000824
18	.7906342	.8080874	.8255407	.8429940	.8604473	18	.0000873
19	.7909250	.8083783	.8258316	.8432849	.8607382	19	.0000921
20	.7912159	.8086692	.8261225	.8435758	.8610291	20	.0000970
21	.7915068	.8089601	.8264134	.8438667	.8613200	21	.0001018
22	.7917977	.8092510	.8267043	.8441576	.8616109	22	.0001067
23	.7920886	.8095419	.8269952	.8444485	.8619018	23	.0001115
24	.7923795	.8098328	.8272861	.8447394	.8621927	24	.0001164
25	.7926704	.8101237	.8275770	.8450302	.8624835	25	.0001212
26	.7929613	.8104145	.8278678	.8453211	.8627744	26	.0001261
27	.7932521	.8107054	.8281587	.8456120	.8630653	27	.0001309
28	.7935430	.8109963	.8284496	.8459029	.8633562	28	.0001357
29	.7938339	.8112872	.8287405	.8461938	.8636471	29	.0001406
30	.7941248	.8115781	.8290314	.8464847	.8639380	30	.0001454
31	.7944157	.8118690	.8293223	.8467756	.8642289	31	.0001503
32	.7947066	.8121599	.8296132	.8470665	.8645198	32	.0001551
33	.7949975	.8124508	.8299041	.8473574	.8648106	33	.0001600
34	.7952884	.8127417	.8301949	.8476482	.8651015	34	.0001648
35	.7955793	.8130325	.8304858	.8479391	.8653924	35	.0001697
36	.7958701	.8133234	.8307767	.8482300	.8656833	36	.0001745
37	.7961610	.8136143	.8310676	.8485209	.8659742	37	.0001794
38	.7964519	.8139052	.8313585	.8488118	.8662651	38	.0001842
39	.7967428	.8141961	.8316494	.8491027	.8665560	39	.0001891
40	.7970337	.8144870	.8319403	.8493936	.8668469	40	.0001939
41	.7973246	.8147779	.8322312	.8496845	.8671378	41	.0001988
42	.7976155	.8150688	.8325221	.8499753	.8674286	42	.0002036
43	.7979064	.8153596	.8328129	.8502662	.8677195	43	.0002085
44	.7981972	.8156505	.8331038	.8505571	.8680104	44	.0002133
45	.7984881	.8159414	.8333947	.8508480	.8683013	45	.0002182
46	.7987790	.8162323	.8336856	.8511389	.8685922	46	.0002230
47	.7990699	.8165232	.8339765	.8514298	.8688831	47	.0002279
48	.7993608	.8168141	.8342674	.8517207	.8691740	48	.0002327
49	.7996517	.8171050	.8345583	.8520116	.8694649	49	.0002376
50	.7999426	.8173959	.8348492	.8523025	.8697557	50	.0002424
51	.8002335	.8176868	.8351400	.8525933	.8700466	51	.0002473
52	.8005244	.8179776	.8354309	.8528842	.8703375	52	.0002521
53	.8008152	.8182685	.8357218	.8531751	.8706284	53	.0002570
54	.8011061	.8185594	.8360127	.8534660	.8709193	54	.0002618
55	.8013970	.8188503	.8363036	.8537569	.8712102	55	.0002666
56	.8016879	.8191412	.8365945	.8540478	.8715011	56	.0002715
57	.8019788	.8194321	.8368854	.8543387	.8717920	57	.0002763
58	.8022697	.8197230	.8371763	.8546296	.8720828	58	.0002812
59	.8025606	.8200139	.8374672	.8549204	.8723737	59	.0002860
60	.8028515	.8203047	.8377580	.8552113	.8726646	60	.0002909

TABLE 2. LENGTHS OF CIRCULAR ARCS; RADIUS = 1

'	50°	51°	52°	53°	54°	"	
0	.8726646	.8901179	.9075712	.9250245	.9424778	0	.0000000
1	.8729555	.8904088	.9078621	.9253154	.9427687	1	.0000048
2	.8732464	.8906997	.9081530	.9256063	.9430596	2	.0000097
3	.8735373	.8909906	.9084439	.9258972	.9433505	3	.0000145
4	.8738282	.8912815	.9087348	.9261881	.9436413	4	.0000194
5	.8741191	.8915724	.9090257	.9264789	.9439322	5	.0000242
6	.8744100	.8918632	.9093165	.9267698	.9442231	6	.0000291
7	.8747008	.8921541	.9096074	.9270607	.9445140	7	.0000339
8	.8749917	.8924450	.9098983	.9273516	.9448049	8	.0000388
9	.8752826	.8927359	.9101892	.9276425	.9450958	9	.0000436
10	.8755735	.8930268	.9104801	.9279334	.9453867	10	.0000485
11	.8758644	.8933177	.9107710	.9282243	.9456776	11	.0000533
12	.8761553	.8936086	.9110619	.9285152	.9459685	12	.0000582
13	.8764462	.8938995	.9113528	.9288061	.9462593	13	.0000630
14	.8767371	.8941904	.9116436	.9290969	.9465502	14	.0000679
15	.8770279	.8944812	.9119345	.9293878	.9468411	15	.0000727
16	.8773188	.8947721	.9122254	.9296787	.9471320	16	.0000776
17	.8776097	.8950630	.9125163	.9299696	.9474229	17	.0000824
18	.8779006	.8953539	.9128072	.9302605	.9477138	18	.0000873
19	.8781915	.8956448	.9130981	.9305514	.9480047	19	.0000921
20	.8784824	.8959357	.9133890	.9308423	.9482956	20	.0000970
21	.8787733	.8962266	.9136799	.9311332	.9485864	21	.0001018
22	.8790642	.8965175	.9139708	.9314240	.9488773	22	.0001067
23	.8793551	.8968083	.9142616	.9317149	.9491682	23	.0001115
24	.8796459	.8970992	.9145525	.9320058	.9494591	24	.0001164
25	.8799368	.8973901	.9148434	.9322967	.9497500	25	.0001212
26	.8802277	.8976810	.9151343	.9325876	.9500409	26	.0001261
27	.8805186	.8979719	.9154252	.9328785	.9503318	27	.0001309
28	.8808095	.8982628	.9157161	.9331694	.9506227	28	.0001357
29	.8811004	.8985537	.9160070	.9334603	.9509136	29	.0001406
30	.8813913	.8988446	.9162979	.9337511	.9512044	30	.0001454
31	.8816822	.8991355	.9165887	.9340420	.9514953	31	.0001503
32	.8819730	.8994263	.9168796	.9343329	.9517862	32	.0001551
33	.8822639	.8997172	.9171705	.9346238	.9520771	33	.0001600
34	.8825548	.9000081	.9174614	.9349147	.9523680	34	.0001648
35	.8828457	.9002990	.9177523	.9352056	.9526589	35	.0001697
36	.8831366	.9005899	.9180432	.9354965	.9529498	36	.0001745
37	.8834275	.9008808	.9183341	.9357874	.9532407	37	.0001794
38	.8837184	.9011717	.9186250	.9360783	.9535315	38	.0001842
39	.8840093	.9014626	.9189159	.9363691	.9538224	39	.0001891
40	.8843002	.9017534	.9192067	.9366600	.9541133	40	.0001939
41	.8845910	.9020443	.9194976	.9369509	.9544042	41	.0001988
42	.8848819	.9023352	.9197885	.9372418	.9546951	42	.0002036
43	.8851728	.9026261	.9200794	.9375327	.9549860	43	.0002085
44	.8854637	.9029170	.9203703	.9378236	.9552769	44	.0002133
45	.8857546	.9032079	.9206612	.9381145	.9555678	45	.0002182
46	.8860455	.9034988	.9209521	.9384054	.9558587	46	.0002230
47	.8863364	.9037897	.9212430	.9386962	.9561495	47	.0002279
48	.8866273	.9040806	.9215338	.9389871	.9564404	48	.0002327
49	.8869181	.9043714	.9218247	.9392780	.9567313	49	.0002376
50	.8872090	.9046623	.9221156	.9395689	.9570222	50	.0002424
51	.8874999	.9049532	.9224065	.9398598	.9573131	51	.0002473
52	.8877908	.9052441	.9226974	.9401507	.9576040	52	.0002521
53	.8880817	.9055350	.9229883	.9404416	.9578949	53	.0002570
54	.8883726	.9058259	.9232792	.9407325	.9581858	54	.0002618
55	.8886635	.9061168	.9235701	.9410234	.9584766	55	.0002666
56	.8889544	.9064077	.9238610	.9413142	.9587675	56	.0002715
57	.8892453	.9066985	.9241518	.9416051	.9590584	57	.0002763
58	.8895361	.9069894	.9244427	.9418960	.9593493	58	.0002812
59	.8898270	.9072803	.9247336	.9421869	.9596402	59	.0002860
60	.8901179	.9075712	.9250245	.9424778	.9599311	60	.0002909

TABLE 2. LENGTHS OF CIRCULAR ARCS; RADIUS = 1

'	55°	56°	57°	58°	59°	"	
0	.9599311	.9773844	.9948377	1.0122910	1.0297443	0	.0000000
1	.9602220	.9776753	.9951286	1.0125819	1.0300351	1	.0000048
2	.9605129	.9779662	.9954195	1.0128727	1.0303260	2	.0000097
3	.9608038	.9782570	.9957103	1.0131636	1.0306169	3	.0000145
4	.9610946	.9785479	.9960012	1.0134545	1.0309078	4	.0000194
5	.9613855	.9788388	.9962921	1.0137454	1.0311987	5	.0000242
6	.9616764	.9791297	.9965830	1.0140363	1.0314896	6	.0000291
7	.9619673	.9794206	.9968739	1.0143272	1.0317805	7	.0000339
8	.9622582	.9797115	.9971648	1.0146181	1.0320714	8	.0000388
9	.9625491	.9800024	.9974557	1.0149090	1.0323623	9	.0000436
10	.9628400	.9802933	.9977466	1.0151998	1.0326531	10	.0000485
11	.9631309	.9805842	.9980374	1.0154907	1.0329440	11	.0000533
12	.9634217	.9808750	.9983283	1.0157816	1.0332349	12	.0000582
13	.9637126	.9811659	.9986192	1.0160725	1.0335258	13	.0000630
14	.9640035	.9814568	.9989101	1.0163634	1.0338167	14	.0000679
15	.9642944	.9817477	.9992010	1.0166543	1.0341076	15	.0000727
16	.9645853	.9820386	.9994919	1.0169452	1.0343985	16	.0000776
17	.9648762	.9823295	.9997828	1.0172361	1.0346894	17	.0000824
18	.9651671	.9826204	1.0000737	1.0175270	1.0349802	18	.0000873
19	.9654580	.9829113	1.0003645	1.0178178	1.0352711	19	.0000921
20	.9657489	.9832021	1.0006554	1.0181087	1.0355620	20	.0000970
21	.9660397	.9834930	1.0009463	1.0183996	1.0358529	21	.0001018
22	.9663306	.9837839	1.0012372	1.0186905	1.0361438	22	.0001067
23	.9666215	.9840748	1.0015281	1.0189814	1.0364347	23	.0001115
24	.9669124	.9843657	1.0018190	1.0192723	1.0367256	24	.0001164
25	.9672033	.9846566	1.0021099	1.0195632	1.0370165	25	.0001212
26	.9674942	.9849475	1.0024008	1.0198541	1.0373074	26	.0001261
27	.9677851	.9852384	1.0026917	1.0201449	1.0375982	27	.0001309
28	.9680760	.9855293	1.0029825	1.0204358	1.0378891	28	.0001357
29	.9683668	.9858201	1.0032734	1.0207267	1.0381800	29	.0001406
30	.9686577	.9861110	1.0035643	1.0210176	1.0384709	30	.0001454
31	.9689486	.9864019	1.0038552	1.0213085	1.0387618	31	.0001503
32	.9692395	.9866928	1.0041461	1.0215994	1.0390527	32	.0001551
33	.9695304	.9869837	1.0044370	1.0218903	1.0393436	33	.0001600
34	.9698213	.9872746	1.0047279	1.0221812	1.0396345	34	.0001648
35	.9701122	.9875655	1.0050188	1.0224721	1.0399253	35	.0001697
36	.9704031	.9878564	1.0053096	1.0227629	1.0402162	36	.0001745
37	.9706940	.9881472	1.0056005	1.0230538	1.0405071	37	.0001794
38	.9709848	.9884381	1.0058914	1.0233447	1.0407980	38	.0001842
39	.9712757	.9887290	1.0061823	1.0236356	1.0410889	39	.0001891
40	.9715666	.9890199	1.0064732	1.0239265	1.0413798	40	.0001939
41	.9718575	.9893108	1.0067641	1.0242174	1.0416707	41	.0001988
42	.9721484	.9896017	1.0070550	1.0245083	1.0419616	42	.0002036
43	.9724393	.9898926	1.0073459	1.0247992	1.0422525	43	.0002085
44	.9727302	.9901835	1.0076368	1.0250900	1.0425434	44	.0002133
45	.9730211	.9904744	1.0079276	1.0253809	1.0428343	45	.0002182
46	.9733119	.9907652	1.0082185	1.0256718	1.0431251	46	.0002230
47	.9736028	.9910561	1.0085094	1.0259627	1.0434160	47	.0002279
48	.9738937	.9913470	1.0088003	1.0262536	1.0437069	48	.0002327
49	.9741846	.9916379	1.0090912	1.0265445	1.0439978	49	.0002376
50	.9744755	.9919288	1.0093821	1.0268354	1.0442887	50	.0002424
51	.9747664	.9922197	1.0096730	1.0271263	1.0445796	51	.0002473
52	.9750573	.9925106	1.0099639	1.0274172	1.0448704	52	.0002521
53	.9753482	.9928015	1.0102547	1.0277080	1.0451613	53	.0002570
54	.9756391	.9930923	1.0105456	1.0279989	1.0454522	54	.0002618
55	.9759299	.9933832	1.0108365	1.0282898	1.0457431	55	.0002666
56	.9762208	.9936741	1.0111274	1.0285807	1.0460340	56	.0002715
57	.9765117	.9939650	1.0114183	1.0288716	1.0463249	57	.0002763
58	.9768026	.9942559	1.0117092	1.0291625	1.0466158	58	.0002812
59	.9770935	.9945468	1.0120001	1.0294534	1.0469067	59	.0002860
60	.9773844	.9948377	1.0122910	1.0297443	1.0471976	60	.0002909

TABLE 2. LENGTHS OF CIRCULAR ARCS; RADIUS = 1

'	60°	61°	62°	63°	64°	''	
0	1.0471976	1.0646508	1.0821041	1.0995574	1.1170107	0	.0000000
1	1.0474884	1.0649417	1.0823950	1.0998483	1.1173016	1	.0000048
2	1.0477793	1.0652326	1.0826859	1.1001392	1.1175925	2	.0000097
3	1.0480702	1.0655235	1.0829768	1.1004301	1.1178834	3	.0000145
4	1.0483611	1.0658144	1.0832677	1.1007210	1.1181743	4	.0000194
5	1.0486520	1.0661053	1.0835586	1.1010119	1.1184652	5	.0000242
6	1.0489429	1.0663962	1.0838495	1.1013028	1.1187561	6	.0000291
7	1.0492338	1.0666871	1.0841404	1.1015936	1.1190469	7	.0000339
8	1.0495247	1.0669779	1.0844312	1.1018845	1.1193378	8	.0000388
9	1.0498155	1.0672688	1.0847221	1.1021754	1.1196287	9	.0000436
10	1.0501064	1.0675597	1.0850130	1.1024663	1.1199196	10	.0000485
11	1.0503973	1.0678506	1.0853039	1.1027572	1.1202105	11	.0000533
12	1.0506882	1.0681415	1.0855948	1.1030481	1.1205014	12	.0000582
13	1.0509791	1.0684324	1.0858857	1.1033390	1.1207923	13	.0000630
14	1.0512700	1.0687233	1.0861766	1.1036299	1.1210832	14	.0000679
15	1.0515609	1.0690142	1.0864675	1.1039208	1.1213740	15	.0000727
16	1.0518518	1.0693051	1.0867583	1.1042116	1.1216649	16	.0000776
17	1.0521427	1.0695959	1.0870492	1.1045025	1.1219558	17	.0000824
18	1.0524335	1.0698868	1.0873401	1.1047934	1.1222467	18	.0000873
19	1.0527244	1.0701777	1.0876310	1.1050843	1.1225376	19	.0000921
20	1.0530153	1.0704686	1.0879219	1.1053752	1.1228285	20	.0000970
21	1.0533062	1.0707595	1.0882128	1.1056661	1.1231194	21	.0001018
22	1.0535971	1.0710504	1.0885037	1.1059570	1.1234103	22	.0001067
23	1.0538880	1.0713413	1.0887946	1.1062479	1.1237012	23	.0001115
24	1.0541789	1.0716322	1.0890855	1.1065387	1.1239920	24	.0001164
25	1.0544698	1.0719230	1.0893763	1.1068296	1.1242829	25	.0001212
26	1.0547606	1.0722139	1.0896672	1.1071205	1.1245738	26	.0001261
27	1.0550515	1.0725048	1.0899581	1.1074114	1.1248647	27	.0001309
28	1.0553424	1.0727957	1.0902490	1.1077023	1.1251556	28	.0001357
29	1.0556333	1.0730866	1.0905399	1.1079932	1.1254465	29	.0001406
30	1.0559242	1.0733775	1.0908308	1.1082841	1.1257374	30	.0001454
31	1.0562151	1.0736684	1.0911217	1.1085750	1.1260283	31	.0001503
32	1.0565060	1.0739593	1.0914126	1.1088659	1.1263191	32	.0001551
33	1.0567969	1.0742502	1.0917034	1.1091567	1.1266100	33	.0001600
34	1.0570878	1.0745410	1.0919943	1.1094476	1.1269009	34	.0001648
35	1.0573786	1.0748319	1.0922852	1.1097385	1.1271918	35	.0001697
36	1.0576695	1.0751228	1.0925761	1.1100294	1.1274827	36	.0001745
37	1.0579604	1.0754137	1.0928670	1.1103203	1.1277736	37	.0001794
38	1.0582513	1.0757046	1.0931579	1.1106112	1.1280645	38	.0001842
39	1.0585422	1.0759955	1.0934488	1.1109021	1.1283554	39	.0001891
40	1.0588331	1.0762864	1.0937397	1.1111930	1.1286462	40	.0001939
41	1.0591240	1.0765773	1.0940306	1.1114838	1.1289371	41	.0001988
42	1.0594149	1.0768681	1.0943214	1.1117747	1.1292280	42	.0002036
43	1.0597057	1.0771590	1.0946123	1.1120656	1.1295189	43	.0002085
44	1.0599966	1.0774499	1.0949032	1.1123565	1.1298098	44	.0002133
45	1.0602875	1.0777408	1.0951941	1.1126474	1.1301007	45	.0002182
46	1.0605784	1.0780317	1.0954850	1.1129383	1.1303916	46	.0002230
47	1.0608693	1.0783226	1.0957759	1.1132292	1.1306825	47	.0002279
48	1.0611602	1.0786135	1.0960668	1.1135201	1.1309734	48	.0002327
49	1.0614511	1.0789044	1.0963577	1.1138110	1.1312642	49	.0002376
50	1.0617420	1.0791953	1.0966485	1.1141018	1.1315551	50	.0002424
51	1.0620328	1.0794861	1.0969394	1.1143927	1.1318460	51	.0002473
52	1.0623237	1.0797770	1.0972303	1.1146836	1.1321369	52	.0002521
53	1.0626146	1.0800679	1.0975212	1.1149745	1.1324278	53	.0002570
54	1.0629055	1.0803588	1.0978121	1.1152654	1.1327187	54	.0002618
55	1.0631964	1.0806497	1.0981030	1.1155563	1.1330096	55	.0002666
56	1.0634873	1.0809406	1.0983939	1.1158472	1.1333005	56	.0002715
57	1.0637782	1.0812315	1.0986848	1.1161381	1.1335913	57	.0002763
58	1.0640691	1.0815224	1.0989757	1.1164289	1.1338822	58	.0002812
59	1.0643600	1.0818132	1.0992665	1.1167198	1.1341731	59	.0002860
60	1.0646508	1.0821041	1.0995574	1.1170107	1.1344640	60	.0002909

TABLE 2. LENGTHS OF CIRCULAR ARCS; RADIUS = 1

'	65°	66°	67°	68°	69°	"	
0	1.1344640	1.1519173	1.1693706	1.1868239	1.2042772	0	.0000000
1	1.1347549	1.1522082	1.1696615	1.1871148	1.2045681	1	.0000048
2	1.1350458	1.1524991	1.1699524	1.1874057	1.2048590	2	.0000097
3	1.1353367	1.1527900	1.1702433	1.1876966	1.2051498	3	.0000145
4	1.1356276	1.1530809	1.1705342	1.1879874	1.2054407	4	.0000194
5	1.1359185	1.1533717	1.1708250	1.1882783	1.2057316	5	.0000242
6	1.1362093	1.1536626	1.1711159	1.1885692	1.2060225	6	.0000291
7	1.1365002	1.1539535	1.1714068	1.1888601	1.2063134	7	.0000339
8	1.1367911	1.1542444	1.1716977	1.1891510	1.2066043	8	.0000388
9	1.1370820	1.1545353	1.1719886	1.1894419	1.2068952	9	.0000436
10	1.1373729	1.1548262	1.1722795	1.1897328	1.2071861	10	.0000485
11	1.1376638	1.1551171	1.1725704	1.1900237	1.2074770	11	.0000533
12	1.1379547	1.1554080	1.1728613	1.1903145	1.2077678	12	.0000582
13	1.1382456	1.1556989	1.1731521	1.1906054	1.2080587	13	.0000630
14	1.1385364	1.1559897	1.1734430	1.1908963	1.2083496	14	.0000679
15	1.1388273	1.1562806	1.1737339	1.1911872	1.2086405	15	.0000727
16	1.1391182	1.1565715	1.1740248	1.1914781	1.2089314	16	.0000776
17	1.1394091	1.1568624	1.1743157	1.1917690	1.2092223	17	.0000824
18	1.1397000	1.1571533	1.1746066	1.1920599	1.2095132	18	.0000873
19	1.1399909	1.1574442	1.1748975	1.1923508	1.2098041	19	.0000921
20	1.1402818	1.1577351	1.1751884	1.1926417	1.2100949	20	.0000970
21	1.1405727	1.1580260	1.1754793	1.1929325	1.2103858	21	.0001018
22	1.1408636	1.1583168	1.1757701	1.1932234	1.2106767	22	.0001067
23	1.1411544	1.1586077	1.1760610	1.1935143	1.2109676	23	.0001115
24	1.1414453	1.1588986	1.1763519	1.1938052	1.2112585	24	.0001164
25	1.1417362	1.1591895	1.1766428	1.1940961	1.2115494	25	.0001212
26	1.1420271	1.1594804	1.1769337	1.1943870	1.2118403	26	.0001261
27	1.1423180	1.1597713	1.1772246	1.1946779	1.2121312	27	.0001309
28	1.1426089	1.1600622	1.1775155	1.1949688	1.2124221	28	.0001357
29	1.1428998	1.1603531	1.1778064	1.1952596	1.2127129	29	.0001406
30	1.1431907	1.1606440	1.1780972	1.1955505	1.2130038	30	.0001454
31	1.1434815	1.1609348	1.1783881	1.1958414	1.2132947	31	.0001503
32	1.1437724	1.1612257	1.1786790	1.1961323	1.2135856	32	.0001551
33	1.1440633	1.1615166	1.1789699	1.1964232	1.2138765	33	.0001600
34	1.1443542	1.1618075	1.1792608	1.1967141	1.2141674	34	.0001648
35	1.1446451	1.1620984	1.1795517	1.1970050	1.2144583	35	.0001697
36	1.1449360	1.1623893	1.1798426	1.1972959	1.2147492	36	.0001745
37	1.1452269	1.1626802	1.1801335	1.1975868	1.2150400	37	.0001794
38	1.1455178	1.1629711	1.1804244	1.1978777	1.2153309	38	.0001842
39	1.1458087	1.1632619	1.1807152	1.1981685	1.2156218	39	.0001891
40	1.1460995	1.1635528	1.1810061	1.1984594	1.2159127	40	.0001939
41	1.1463904	1.1638437	1.1812970	1.1987503	1.2162036	41	.0001988
42	1.1466813	1.1641346	1.1815879	1.1990412	1.2164945	42	.0002036
43	1.1469722	1.1644255	1.1818788	1.1993321	1.2167854	43	.0002085
44	1.1472631	1.1647164	1.1821697	1.1996230	1.2170763	44	.0002133
45	1.1475540	1.1650073	1.1824606	1.1999139	1.2173672	45	.0002182
46	1.1478449	1.1652982	1.1827515	1.2002047	1.2176580	46	.0002230
47	1.1481358	1.1655891	1.1830423	1.2004956	1.2179489	47	.0002279
48	1.1484266	1.1658799	1.1833332	1.2007865	1.2182398	48	.0002327
49	1.1487175	1.1661708	1.1836241	1.2010774	1.2185307	49	.0002376
50	1.1490084	1.1664617	1.1839150	1.2013683	1.2188216	50	.0002424
51	1.1492993	1.1667526	1.1842059	1.2016592	1.2191125	51	.0002473
52	1.1495902	1.1670435	1.1844968	1.2019501	1.2194034	52	.0002521
53	1.1498811	1.1673344	1.1847877	1.2022410	1.2196943	53	.0002570
54	1.1501720	1.1676253	1.1850786	1.2025319	1.2199851	54	.0002618
55	1.1504629	1.1679162	1.1853695	1.2028227	1.2202760	55	.0002666
56	1.1507538	1.1682070	1.1856603	1.2031136	1.2205669	56	.0002715
57	1.1510446	1.1684979	1.1859512	1.2034045	1.2208578	57	.0002763
58	1.1513355	1.1687888	1.1862421	1.2036954	1.2211487	58	.0002812
59	1.1516264	1.1690797	1.1865330	1.2039863	1.2214396	59	.0002860
60	1.1519173	1.1693706	1.1868239	1.2042772	1.2217305	60	.0002909

TABLE 2. LENGTHS OF CIRCULAR ARCS; RADIUS = 1

'	70°	71°	72°	73°	74°	''	
0	1.2217305	1.2391838	1.2566371	1.2740904	1.2915436	0	.0000000
1	1.2220214	1.2394747	1.2569279	1.2743812	1.2918345	1	.0000048
2	1.2223123	1.2397655	1.2572188	1.2746721	1.2921254	2	.0000097
3	1.2226031	1.2400564	1.2575097	1.2749630	1.2924163	3	.0000145
4	1.2228940	1.2403473	1.2578006	1.2752539	1.2927072	4	.0000194
5	1.2231849	1.2406382	1.2580915	1.2755448	1.2929981	5	.0000242
6	1.2234758	1.2409291	1.2583824	1.2758357	1.2932890	6	.0000291
7	1.2237667	1.2412200	1.2586733	1.2761266	1.2935799	7	.0000339
8	1.2240576	1.2415109	1.2589642	1.2764175	1.2938708	8	.0000388
9	1.2243485	1.2418018	1.2592551	1.2767083	1.2941616	9	.0000436
10	1.2246394	1.2420927	1.2595459	1.2769992	1.2944525	10	.0000485
11	1.2249302	1.2423835	1.2598368	1.2772901	1.2947434	11	.0000533
12	1.2252211	1.2426744	1.2601277	1.2775810	1.2950343	12	.0000582
13	1.2255120	1.2429653	1.2604186	1.2778719	1.2953252	13	.0000630
14	1.2258029	1.2432562	1.2607095	1.2781628	1.2956161	14	.0000679
15	1.2260938	1.2435471	1.2610004	1.2784537	1.2959070	15	.0000727
16	1.2263847	1.2438380	1.2612913	1.2787446	1.2961979	16	.0000776
17	1.2266756	1.2441289	1.2615822	1.2790355	1.2964887	17	.0000824
18	1.2269665	1.2444198	1.2618730	1.2793263	1.2967796	18	.0000873
19	1.2272574	1.2447106	1.2621639	1.2796172	1.2970705	19	.0000921
20	1.2275482	1.2450015	1.2624548	1.2799081	1.2973614	20	.0000970
21	1.2278391	1.2452924	1.2627457	1.2801990	1.2976523	21	.0001018
22	1.2281300	1.2455833	1.2630366	1.2804899	1.2979432	22	.0001067
23	1.2284209	1.2458742	1.2633275	1.2807808	1.2982341	23	.0001115
24	1.2287118	1.2461651	1.2636184	1.2810717	1.2985250	24	.0001164
25	1.2290027	1.2464560	1.2639093	1.2813626	1.2988159	25	.0001212
26	1.2292936	1.2467469	1.2642002	1.2816534	1.2991067	26	.0001261
27	1.2295845	1.2470378	1.2644910	1.2819443	1.2993976	27	.0001309
28	1.2298753	1.2473286	1.2647819	1.2822352	1.2996885	28	.0001357
29	1.2301662	1.2476195	1.2650728	1.2825261	1.2999794	29	.0001406
30	1.2304571	1.2479104	1.2653637	1.2828170	1.3002703	30	.0001454
31	1.2307480	1.2482013	1.2656546	1.2831079	1.3005612	31	.0001503
32	1.2310389	1.2484922	1.2659455	1.2833988	1.3008521	32	.0001551
33	1.2313298	1.2487831	1.2662364	1.2836897	1.3011430	33	.0001600
34	1.2316207	1.2490740	1.2665273	1.2839806	1.3014338	34	.0001648
35	1.2319116	1.2493649	1.2668181	1.2842714	1.3017247	35	.0001697
36	1.2322025	1.2496557	1.2671090	1.2845623	1.3020156	36	.0001745
37	1.2324933	1.2499466	1.2673999	1.2848532	1.3023065	37	.0001794
38	1.2327842	1.2502375	1.2676908	1.2851441	1.3025974	38	.0001842
39	1.2330751	1.2505284	1.2679817	1.2854350	1.3028883	39	.0001891
40	1.2333660	1.2508193	1.2682726	1.2857259	1.3031792	40	.0001939
41	1.2336569	1.2511102	1.2685635	1.2860168	1.3034701	41	.0001988
42	1.2339478	1.2514011	1.2688544	1.2863077	1.3037610	42	.0002036
43	1.2342387	1.2516920	1.2691453	1.2865985	1.3040518	43	.0002085
44	1.2345296	1.2519829	1.2694361	1.2868894	1.3043427	44	.0002133
45	1.2348204	1.2522737	1.2697270	1.2871803	1.3046336	45	.0002182
46	1.2351113	1.2525646	1.2700179	1.2874712	1.3049245	46	.0002230
47	1.2354022	1.2528555	1.2703088	1.2877621	1.3052154	47	.0002279
48	1.2356931	1.2531464	1.2705997	1.2880530	1.3055063	48	.0002327
49	1.2359840	1.2534373	1.2708906	1.2883439	1.3057972	49	.0002376
50	1.2362749	1.2537282	1.2711815	1.2886348	1.3060881	50	.0002424
51	1.2365658	1.2540191	1.2714724	1.2889257	1.3063789	51	.0002473
52	1.2368567	1.2543100	1.2717632	1.2892165	1.3066698	52	.0002521
53	1.2371476	1.2546008	1.2720541	1.2895074	1.3069607	53	.0002570
54	1.2374384	1.2548917	1.2723450	1.2897983	1.3072516	54	.0002618
55	1.2377293	1.2551826	1.2726359	1.2900892	1.3075425	55	.0002666
56	1.2380202	1.2554735	1.2729268	1.2903801	1.3078334	56	.0002715
57	1.2383111	1.2557644	1.2732177	1.2906710	1.3081243	57	.0002763
58	1.2386020	1.2560553	1.2735086	1.2909619	1.3084152	58	.0002812
59	1.2388929	1.2563462	1.2737995	1.2912528	1.3087061	59	.0002860
60	1.2391838	1.2566371	1.2740904	1.2915436	1.3089969	60	.0002909

TABLE 2. LENGTHS OF CIRCULAR ARCS; RADIUS = 1

'	75°	76°	77°	78°	79°	"	
0	1.3089969	1.3264502	1.3439035	1.3613568	1.3788101	0	.0000000
1	1.3092878	1.3267411	1.3441944	1.3616477	1.3791010	1	.0000048
2	1.3095787	1.3270320	1.3444853	1.3619386	1.3793919	2	.0000097
3	1.3098696	1.3273229	1.3447762	1.3622295	1.3796828	3	.0000145
4	1.3101605	1.3276138	1.3450671	1.3625204	1.3799737	4	.0000194
5	1.3104514	1.3279047	1.3453580	1.3628113	1.3802646	5	.0000242
6	1.3107423	1.3281956	1.3456489	1.3631021	1.3805554	6	.0000291
7	1.3110332	1.3284864	1.3459397	1.3633930	1.3808463	7	.0000339
8	1.3113240	1.3287773	1.3462306	1.3636839	1.3811372	8	.0000388
9	1.3116149	1.3290682	1.3465215	1.3639748	1.3814281	9	.0000436
10	1.3119058	1.3293591	1.3468124	1.3642657	1.3817190	10	.0000485
11	1.3121967	1.3296500	1.3471033	1.3645566	1.3820099	11	.0000533
12	1.3124876	1.3299409	1.3473942	1.3648475	1.3823008	12	.0000582
13	1.3127785	1.3302318	1.3476851	1.3651384	1.3825917	13	.0000630
14	1.3130694	1.3305227	1.3479760	1.3654293	1.3828825	14	.0000679
15	1.3133603	1.3308136	1.3482668	1.3657201	1.3831734	15	.0000727
16	1.3136512	1.3311044	1.3485577	1.3660110	1.3834643	16	.0000776
17	1.3139420	1.3313953	1.3488486	1.3663019	1.3837552	17	.0000824
18	1.3142329	1.3316862	1.3491395	1.3665928	1.3840461	18	.0000873
19	1.3145238	1.3319771	1.3494304	1.3668837	1.3843370	19	.0000921
20	1.3148147	1.3322680	1.3497213	1.3671746	1.3846279	20	.0000970
21	1.3151056	1.3325589	1.3500122	1.3674655	1.3849188	21	.0001018
22	1.3153965	1.3328498	1.3503031	1.3677564	1.3852096	22	.0001067
23	1.3156874	1.3331407	1.3505940	1.3680472	1.3855005	23	.0001115
24	1.3159783	1.3334315	1.3508848	1.3683381	1.3857914	24	.0001164
25	1.3162691	1.3337224	1.3511757	1.3686290	1.3860823	25	.0001212
26	1.3165600	1.3340133	1.3514666	1.3689199	1.3863732	26	.0001261
27	1.3168509	1.3343042	1.3517575	1.3692108	1.3866641	27	.0001309
28	1.3171418	1.3345951	1.3520484	1.3695017	1.3869550	28	.0001357
29	1.3174327	1.3348860	1.3523393	1.3697926	1.3872459	29	.0001406
30	1.3177236	1.3351769	1.3526302	1.3700835	1.3875368	30	.0001454
31	1.3180145	1.3354678	1.3529211	1.3703744	1.3878276	31	.0001503
32	1.3183054	1.3357587	1.3532119	1.3706652	1.3881185	32	.0001551
33	1.3185962	1.3360495	1.3535028	1.3709561	1.3884094	33	.0001600
34	1.3188871	1.3363404	1.3537937	1.3712470	1.3887003	34	.0001648
35	1.3191780	1.3366313	1.3540846	1.3715379	1.3889912	35	.0001697
36	1.3194689	1.3369222	1.3543755	1.3718288	1.3892821	36	.0001745
37	1.3197598	1.3372131	1.3546664	1.3721197	1.3895730	37	.0001794
38	1.3200507	1.3375040	1.3549573	1.3724106	1.3898639	38	.0001842
39	1.3203416	1.3377949	1.3552482	1.3727015	1.3901547	39	.0001891
40	1.3206325	1.3380858	1.3555391	1.3729923	1.3904456	40	.0001939
41	1.3209234	1.3383766	1.3558299	1.3732832	1.3907365	41	.0001988
42	1.3212142	1.3386675	1.3561208	1.3735741	1.3910274	42	.0002036
43	1.3215051	1.3389584	1.3564117	1.3738650	1.3913183	43	.0002085
44	1.3217960	1.3392493	1.3567026	1.3741559	1.3916092	44	.0002133
45	1.3220869	1.3395402	1.3569935	1.3744468	1.3919001	45	.0002182
46	1.3223778	1.3398311	1.3572844	1.3747377	1.3921910	46	.0002230
47	1.3226687	1.3401220	1.3575753	1.3750286	1.3924819	47	.0002279
48	1.3229596	1.3404129	1.3578662	1.3753195	1.3927727	48	.0002327
49	1.3232505	1.3407038	1.3581570	1.3756103	1.3930636	49	.0002376
50	1.3235413	1.3409946	1.3584479	1.3759012	1.3933545	50	.0002424
51	1.3238322	1.3412855	1.3587388	1.3761921	1.3936454	51	.0002473
52	1.3241231	1.3415764	1.3590297	1.3764830	1.3939363	52	.0002521
53	1.3244140	1.3418673	1.3593206	1.3767739	1.3942272	53	.0002570
54	1.3247049	1.3421582	1.3596115	1.3770648	1.3945181	54	.0002618
55	1.3249958	1.3424491	1.3599024	1.3773557	1.3948090	55	.0002666
56	1.3252867	1.3427400	1.3601933	1.3776466	1.3950998	56	.0002715
57	1.3255776	1.3430309	1.3604842	1.3779374	1.3953907	57	.0002763
58	1.3258685	1.3433217	1.3607750	1.3782283	1.3956816	58	.0002812
59	1.3261593	1.3436126	1.3610659	1.3785192	1.3959725	59	.0002860
60	1.3264502	1.3439035	1.3613568	1.3788101	1.3962634	60	.0002909

TABLE 2. LENGTHS OF CIRCULAR ARCS; RADIUS = 1

'	80°	81°	82°	83°	84°	''	
0	1.3962634	1.4137167	1.4311700	1.4486233	1.4660766	0	.0000000
1	1.3965543	1.4140076	1.4314609	1.4489142	1.4663675	1	.0000048
2	1.3968452	1.4142985	1.4317518	1.4492051	1.4666583	2	.0000097
3	1.3971361	1.4145894	1.4320427	1.4494959	1.4669492	3	.0000145
4	1.3974270	1.4148802	1.4323335	1.4497868	1.4672401	4	.0000194
5	1.3977178	1.4151711	1.4326244	1.4500777	1.4675310	5	.0000242
6	1.3980087	1.4154620	1.4329153	1.4503686	1.4678219	6	.0000291
7	1.3982996	1.4157529	1.4332062	1.4506595	1.4681128	7	.0000339
8	1.3985905	1.4160438	1.4334971	1.4509504	1.4684037	8	.0000388
9	1.3988814	1.4163347	1.4337880	1.4512413	1.4686946	9	.0000436
10	1.3991723	1.4166256	1.4340789	1.4515322	1.4689855	10	.0000485
11	1.3994632	1.4169165	1.4343698	1.4518230	1.4692763	11	.0000533
12	1.3997541	1.4172074	1.4346606	1.4521139	1.4695672	12	.0000582
13	1.4000449	1.4174982	1.4349515	1.4524048	1.4698581	13	.0000630
14	1.4003358	1.4177891	1.4352424	1.4526957	1.4701490	14	.0000679
15	1.4006267	1.4180800	1.4355333	1.4529866	1.4704399	15	.0000727
16	1.4009176	1.4183709	1.4358242	1.4532775	1.4707308	16	.0000776
17	1.4012085	1.4186618	1.4361151	1.4535684	1.4710217	17	.0000824
18	1.4014994	1.4189527	1.4364060	1.4538593	1.4713126	18	.0000873
19	1.4017903	1.4192436	1.4366969	1.4541502	1.4716034	19	.0000921
20	1.4020812	1.4195345	1.4369878	1.4544410	1.4718943	20	.0000970
21	1.4023721	1.4198253	1.4372786	1.4547319	1.4721852	21	.0001018
22	1.4026629	1.4201162	1.4375695	1.4550228	1.4724761	22	.0001067
23	1.4029538	1.4204071	1.4378604	1.4553137	1.4727670	23	.0001115
24	1.4032447	1.4206980	1.4381513	1.4556046	1.4730579	24	.0001164
25	1.4035356	1.4209889	1.4384422	1.4558955	1.4733488	25	.0001212
26	1.4038265	1.4212798	1.4387331	1.4561864	1.4736397	26	.0001261
27	1.4041174	1.4215707	1.4390240	1.4564773	1.4739306	27	.0001309
28	1.4044083	1.4218616	1.4393149	1.4567681	1.4742214	28	.0001357
29	1.4046992	1.4221525	1.4396057	1.4570590	1.4745123	29	.0001406
30	1.4049900	1.4224433	1.4398966	1.4573499	1.4748032	30	.0001454
31	1.4052809	1.4227342	1.4401875	1.4576408	1.4750941	31	.0001503
32	1.4055718	1.4230251	1.4404784	1.4579317	1.4753850	32	.0001551
33	1.4058627	1.4233160	1.4407693	1.4582226	1.4756759	33	.0001600
34	1.4061536	1.4236069	1.4410602	1.4585135	1.4759668	34	.0001648
35	1.4064445	1.4238978	1.4413511	1.4588044	1.4762577	35	.0001697
36	1.4067354	1.4241887	1.4416420	1.4590953	1.4765485	36	.0001745
37	1.4070263	1.4244796	1.4419329	1.4593861	1.4768394	37	.0001794
38	1.4073172	1.4247704	1.4422237	1.4596770	1.4771303	38	.0001842
39	1.4076080	1.4250613	1.4425146	1.4599679	1.4774212	39	.0001891
40	1.4078989	1.4253522	1.4428055	1.4602588	1.4777121	40	.0001939
41	1.4081898	1.4256431	1.4430964	1.4605497	1.4780030	41	.0001988
42	1.4084807	1.4259340	1.4433873	1.4608406	1.4782939	42	.0002036
43	1.4087716	1.4262249	1.4436782	1.4611315	1.4785848	43	.0002085
44	1.4090625	1.4265158	1.4439691	1.4614224	1.4788757	44	.0002133
45	1.4093534	1.4268067	1.4442600	1.4617132	1.4791665	45	.0002182
46	1.4096443	1.4270976	1.4445508	1.4620041	1.4794574	46	.0002230
47	1.4099351	1.4273884	1.4448417	1.4622950	1.4797483	47	.0002279
48	1.4102260	1.4276793	1.4451326	1.4625859	1.4800392	48	.0002327
49	1.4105169	1.4279702	1.4454235	1.4628768	1.4803301	49	.0002376
50	1.4108078	1.4282611	1.4457144	1.4631677	1.4806210	50	.0002424
51	1.4110987	1.4285520	1.4460053	1.4634586	1.4809119	51	.0002473
52	1.4113896	1.4288429	1.4462962	1.4637495	1.4812028	52	.0002521
53	1.4116805	1.4291338	1.4465871	1.4640404	1.4814936	53	.0002570
54	1.4119714	1.4294247	1.4468779	1.4643312	1.4817845	54	.0002618
55	1.4122623	1.4297155	1.4471688	1.4646221	1.4820754	55	.0002666
56	1.4125531	1.4300064	1.4474597	1.4649130	1.4823663	56	.0002715
57	1.4128440	1.4302973	1.4477506	1.4652039	1.4826572	57	.0002763
58	1.4131349	1.4305882	1.4480415	1.4654948	1.4829481	58	.0002812
59	1.4134258	1.4308791	1.4483324	1.4657857	1.4832390	59	.0002860
60	1.4137167	1.4311700	1.4486233	1.4660766	1.4835299	60	.0002909

TABLE 2. LENGTHS OF CIRCULAR ARCS; RADIUS = 1

'	85°	86°	87°	88°	89°	"	
0	1.4835299	1.5009832	1.5184364	1.5358897	1.5533430	0	.0000000
1	1.4838208	1.5012740	1.5187273	1.5361806	1.5536339	1	.0000048
2	1.4841116	1.5015649	1.5190182	1.5364715	1.5539248	2	.0000097
3	1.4844025	1.5018558	1.5193091	1.5367624	1.5542157	3	.0000145
4	1.4846934	1.5021467	1.5196000	1.5370533	1.5545066	4	.0000194
5	1.4849843	1.5024376	1.5198909	1.5373442	1.5547975	5	.0000242
6	1.4852752	1.5027285	1.5201818	1.5376351	1.5550884	6	.0000291
7	1.4855661	1.5030194	1.5204727	1.5379260	1.5553793	7	.0000339
8	1.4858570	1.5033103	1.5207636	1.5382168	1.5556701	8	.0000388
9	1.4861479	1.5036012	1.5210544	1.5385077	1.5559610	9	.0000436
10	1.4864387	1.5038920	1.5213453	1.5387986	1.5562519	10	.0000485
11	1.4867296	1.5041829	1.5216362	1.5390895	1.5565428	11	.0000533
12	1.4870205	1.5044738	1.5219271	1.5393804	1.5568337	12	.0000582
13	1.4873114	1.5047647	1.5222180	1.5396713	1.5571246	13	.0000630
14	1.4876023	1.5050556	1.5225089	1.5399622	1.5574155	14	.0000679
15	1.4878932	1.5053465	1.5227998	1.5402531	1.5577064	15	.0000727
16	1.4881841	1.5056374	1.5230907	1.5405440	1.5579972	16	.0000776
17	1.4884750	1.5059283	1.5233815	1.5408348	1.5582881	17	.0000824
18	1.4887659	1.5062191	1.5236724	1.5411257	1.5585790	18	.0000873
19	1.4890567	1.5065100	1.5239633	1.5414166	1.5588699	19	.0000921
20	1.4893476	1.5068009	1.5242542	1.5417075	1.5591608	20	.0000970
21	1.4896385	1.5070918	1.5245451	1.5419984	1.5594517	21	.0001018
22	1.4899294	1.5073827	1.5248360	1.5422893	1.5597426	22	.0001067
23	1.4902203	1.5076736	1.5251269	1.5425802	1.5600335	23	.0001115
24	1.4905112	1.5079645	1.5254178	1.5428711	1.5603244	24	.0001164
25	1.4908021	1.5082554	1.5257087	1.5431619	1.5606152	25	.0001212
26	1.4910930	1.5085463	1.5259995	1.5434528	1.5609061	26	.0001261
27	1.4913838	1.5088371	1.5262904	1.5437437	1.5611970	27	.0001309
28	1.4916747	1.5091280	1.5265813	1.5440346	1.5614879	28	.0001357
29	1.4919656	1.5094189	1.5268722	1.5443255	1.5617788	29	.0001406
30	1.4922565	1.5097098	1.5271631	1.5446164	1.5620697	30	.0001454
31	1.4925474	1.5100007	1.5274540	1.5449073	1.5623606	31	.0001503
32	1.4928383	1.5102916	1.5277449	1.5451982	1.5626515	32	.0001551
33	1.4931292	1.5105825	1.5280358	1.5454891	1.5629423	33	.0001600
34	1.4934201	1.5108734	1.5283266	1.5457799	1.5632332	34	.0001648
35	1.4937110	1.5111642	1.5286175	1.5460708	1.5635241	35	.0001697
36	1.4940018	1.5114551	1.5289084	1.5463617	1.5638150	36	.0001745
37	1.4942927	1.5117460	1.5291993	1.5466526	1.5641059	37	.0001794
38	1.4945836	1.5120369	1.5294902	1.5469435	1.5643968	38	.0001842
39	1.4948745	1.5123278	1.5297811	1.5472344	1.5646877	39	.0001891
40	1.4951654	1.5126187	1.5300720	1.5475253	1.5649786	40	.0001939
41	1.4954563	1.5129096	1.5303629	1.5478162	1.5652695	41	.0001988
42	1.4957472	1.5132005	1.5306538	1.5481070	1.5655603	42	.0002036
43	1.4960381	1.5134913	1.5309446	1.5483979	1.5658512	43	.0002085
44	1.4963289	1.5137822	1.5312355	1.5486888	1.5661421	44	.0002133
45	1.4966198	1.5140731	1.5315264	1.5489797	1.5664330	45	.0002182
46	1.4969107	1.5143640	1.5318173	1.5492706	1.5667239	46	.0002230
47	1.4972016	1.5146549	1.5321082	1.5495615	1.5670148	47	.0002279
48	1.4974925	1.5149458	1.5323991	1.5498524	1.5673057	48	.0002327
49	1.4977834	1.5152367	1.5326900	1.5501433	1.5675966	49	.0002376
50	1.4980743	1.5155276	1.5329809	1.5504342	1.5678874	50	.0002424
51	1.4983652	1.5158185	1.5332717	1.5507250	1.5681783	51	.0002473
52	1.4986561	1.5161093	1.5335626	1.5510159	1.5684692	52	.0002521
53	1.4989469	1.5164002	1.5338535	1.5513068	1.5687601	53	.0002570
54	1.4992378	1.5166911	1.5341444	1.5515977	1.5690510	54	.0002618
55	1.4995287	1.5169820	1.5344353	1.5518886	1.5693419	55	.0002666
56	1.4998196	1.5172729	1.5347262	1.5521795	1.5696328	56	.0002715
57	1.5001105	1.5175638	1.5350171	1.5524704	1.5699237	57	.0002763
58	1.5004014	1.5178547	1.5353080	1.5527613	1.5702146	58	.0002812
59	1.5006923	1.5181456	1.5355989	1.5530521	1.5705054	59	.0002860
60	1.5009832	1.5184364	1.5358897	1.5533430	1.5707963	60	.0002909

TABLE 3. COEFFICIENT K FOR CENTRAL ANGLES OF CERTAIN CURVES 291

Radius	Coefficient	Radius	Coefficient	Radius	Coefficient
15	229.183 1180	650	5.288 8412	4300	0.799 4760
20	171.887 3385	700	4.911 0668	4400	0.781 3061
25	137.509 8708	750	4.583 6624	4500	0.763 9437
30	114.591 5590	800	4.297 1835	4600	0.747 3363
35	98.221 3363	850	4.044 4080	4700	0.731 4355
40	85.943 6693	900	3.819 7186	4800	0.716 1972
45	76.394 3727	950	3.618 6808	4900	0.701 5810
50	68.754 9354	1000	3.437 7468	5000	0.687 5493
55	62.504 4867	1100	3.125 2243	5100	0.674 0680
60	57.295 7795	1200	2.864 7890	5200	0.661 1051
65	52.888 4118	1300	2.644 4206	5300	0.648 6315
70	49.110 6682	1400	2.455 5334	5400	0.636 6198
75	45.836 6236	1500	2.291 8312	5500	0.625 0449
80	42.971 8346	1600	2.148 5917	5600	0.613 8834
85	40.444 0796	1700	2.022 2040	5700	0.603 1135
90	38.197 1863	1800	1.909 8593	5800	0.592 7150
95	36.186 8081	1900	1.809 3404	5900	0.582 6689
100	34.377 4677	2000	1.718 8734	6000	0.572 9578
110	31.252 2433	2100	1.637 0223	6100	0.563 5650
120	28.647 8898	2200	1.562 6122	6200	0.554 4753
130	26.444 2059	2300	1.494 6725	6300	0.545 6741
140	24.555 3341	2400	1.432 3945	6400	0.537 1479
150	22.918 3118	2500	1.375 0987	6500	0.528 8841
160	21.485 9173	2600	1.322 2103	6600	0.520 8707
170	20.222 0398	2700	1.273 2395	6700	0.513 0965
180	19.098 5932	2800	1.227 7667	6800	0.505 5510
190	18.093 4041	2900	1.185 4299	6900	0.498 2242
200	17.188 7339	3000	1.145 9156	7000	0.491 1067
225	15.278 8745	3100	1.108 9506		
250	13.750 9871	3200	1.074 2957		
275	12.500 8973	3300	1.041 7414		
300	11.459 1559	3400	1.011 1020		
325	10.577 6824	3500	0.982 2134		
350	9.822 1336	3600	0.954 9297		
375	9.167 3247	3700	0.929 1207		
400	8.594 3669	3800	0.904 6702		
450	7.639 4373	3900	0.881 4735		
500	6.875 4935	4000	0.859 4367		
550	6.250 4487	4100	0.838 4751		
600	5.729 5780	4200	0.818 5111		

TABLE 4. RADII FROM ARC DEFINITION

Degree of Curve	Radius of Curve	Degree of Curve	Radius of Curve	Degree of Curve	Radius of Curve	Degree of Curve	Radius of Curve
		° /		° /		° /	
		10 0	572.96	20 0	286.48	30 0	190.99
		10 10	563.56	10 10	284.11	10 10	189.93
		20 20	554.48	20 20	281.78	20 20	188.89
0 30	11,459.16	30 30	545.68	30 30	279.49	30 30	187.86
40	8,594.37	40 40	537.15	40 40	277.24	40 40	186.83
50	6,875.50	50 50	528.88	50 50	275.02	50 50	185.82
1 0	5,729.58	11 0	520.87	21 0	272.84	31 0	184.82
10	4,911.07	10 10	513.10	10 10	270.69	10 10	183.84
20	4,297.18	20 20	505.55	20 20	268.57	20 20	182.86
30	3,819.72	30 30	498.22	30 30	266.49	30 30	181.89
40	3,437.75	40 40	491.11	40 40	264.44	40 40	180.93
50	3,125.23	50 50	484.19	50 50	262.42	50 50	179.99
2 0	2,864.79	12 0	477.46	22 0	260.44	32 0	179.05
10	2,644.42	10 10	470.92	10 10	258.48	10 10	178.12
20	2,455.53	20 20	464.56	20 20	256.55	20 20	177.20
30	2,291.83	30 30	458.37	30 30	254.65	30 30	176.29
40	2,148.59	40 40	452.34	40 40	252.78	40 40	175.40
50	2,022.20	50 50	446.46	50 50	250.93	50 50	174.50
3 0	1,909.86	13 0	440.74	23 0	249.11	33 0	173.62
10	1,809.34	10 10	435.16	10 10	247.32	10 10	172.75
20	1,718.87	20 20	429.72	20 20	245.55	20 20	171.89
30	1,637.02	30 30	424.41	30 30	243.81	30 30	171.03
40	1,562.61	40 40	419.24	40 40	242.09	40 40	170.18
50	1,494.67	50 50	414.19	50 50	240.40	50 50	169.35
4 0	1,432.40	14 0	409.26	24 0	238.73	34 0	168.52
10	1,375.10	10 10	404.44	10 10	237.09	10 10	167.70
20	1,322.21	20 20	399.74	20 20	235.46	20 20	166.88
30	1,273.24	30 30	395.14	30 30	233.86	30 30	166.07
40	1,227.77	40 40	390.65	40 40	232.28	40 40	165.28
50	1,185.43	50 50	386.26	50 50	230.72	50 50	164.48
5 0	1,145.92	15 0	381.97	25 0	229.18	35 0	163.70
10	1,108.95	10 10	377.77	10 10	227.66	10 10	162.93
20	1,074.30	20 20	373.67	20 20	226.17	20 20	162.16
30	1,041.74	30 30	369.65	30 30	224.69	30 30	161.40
40	1,011.10	40 40	365.72	40 40	223.23	40 40	160.64
50	982.21	50 50	361.87	50 50	221.79	50 50	159.90
6 0	954.93	16 0	358.10	26 0	220.37	36 0	159.16
10	929.12	10 10	354.41	10 10	218.96	10 10	158.42
20	904.67	20 20	350.79	20 20	217.58	20 20	157.69
30	881.47	30 30	347.25	30 30	216.21	30 30	156.97
40	859.44	40 40	343.77	40 40	214.86	40 40	156.26
50	838.47	50 50	340.37	50 50	213.52	50 50	155.55
7 0	818.51	17 0	337.03	27 0	212.21	37 0	154.85
10	799.48	10 10	333.76	10 10	210.90	10 10	154.16
20	781.31	20 20	330.55	20 20	209.62	20 20	153.47
30	763.94	30 30	327.40	30 30	208.35	30 30	152.79
40	747.34	40 40	324.32	40 40	207.09	40 40	152.11
50	731.44	50 50	321.28	50 50	205.85	50 50	151.44
8 0	716.20	18 0	318.31	28 0	204.63	38 0	150.78
10	701.58	10 10	315.39	10 10	203.42	10 10	150.12
20	687.55	20 20	312.52	20 20	202.22	20 20	149.47
30	674.07	30 30	309.71	30 30	201.04	30 30	148.82
40	661.11	40 40	306.94	40 40	199.87	40 40	148.18
50	648.63	50 50	304.22	50 50	198.71	50 50	147.54
9 0	636.62	19 0	301.56	29 0	197.57	39 0	146.91
10	625.04	10 10	298.93	10 10	196.44	10 10	146.29
20	613.88	20 20	296.36	20 20	195.33	20 20	145.67
30	603.11	30 30	293.82	30 30	194.22	30 30	145.05
40	592.72	40 40	291.33	40 40	193.13	40 40	144.44
50	582.67	50 50	288.89	50 50	192.05	50 50	143.84

TABLE 4. RADII FROM ARC DEFINITION

Degree of Curve	Radius of Curve	Degree of Curve	Radius of Curve	Degree of Curve	Radius of Curve	Degree of Curve	Radius of Curve				
40	0	143.24	50	0	114.59	60	0	95.49	70	0	81.85
	10	142.64		10	114.21		10	95.23		10	81.66
	20	142.06		20	113.83		20	94.96		20	81.46
	30	141.47		30	113.46		30	94.70		30	81.27
	40	140.89		40	113.08		40	94.44		40	81.08
	50	140.32		50	112.71		50	94.18		50	80.89
41	0	139.74	51	0	112.34	61	0	93.92	71	0	80.70
	10	139.18		10	111.98		10	93.67		10	80.51
	20	138.62		20	111.62		20	93.42		20	80.32
	30	138.06		30	111.26		30	93.16		30	80.13
	40	137.51		40	110.90		40	92.91		40	79.95
	50	136.96		50	110.54		50	92.66		50	79.76
42	0	136.42	52	0	110.18	62	0	92.41	72	0	79.58
	10	135.88		10	109.83		10	92.16		10	79.39
	20	135.34		20	109.48		20	91.92		20	79.21
	30	134.81		30	109.14		30	91.67		30	79.03
	40	134.29		40	108.79		40	91.43		40	78.85
	50	133.76		50	108.45		50	91.19		50	78.67
43	0	133.25	53	0	108.11	63	0	90.94	73	0	78.49
	10	132.73		10	107.77		10	90.71		10	78.31
	20	132.22		20	107.43		20	90.47		20	78.13
	30	131.71		30	107.09		30	90.23		30	77.95
	40	131.21		40	106.76		40	89.99		40	77.78
	50	130.71		50	106.43		50	89.76		50	77.60
44	0	130.22	54	0	106.10	64	0	89.52	74	0	77.43
	10	129.73		10	105.78		10	89.29		10	77.25
	20	129.24		20	105.45		20	89.06		20	77.08
	30	128.75		30	105.13		30	88.83		30	76.91
	40	128.27		40	104.81		40	88.60		40	76.74
	50	127.80		50	104.49		50	88.37		50	76.56
45	0	127.32	55	0	104.17	65	0	88.15	75	0	76.39
	10	126.85		10	103.86		10	87.92		10	76.22
	20	126.39		20	103.55		20	87.70		20	76.06
	30	125.92		30	103.24		30	87.47		30	75.89
	40	125.46		40	102.93		40	87.25		40	75.82
	50	125.01		50	102.62		50	87.03		50	75.55
46	0	124.56	56	0	102.32	66	0	86.81	76	0	75.39
	10	124.11		10	102.01		10	86.59		10	75.22
	20	123.66		20	101.71		20	86.38		20	75.06
	30	123.22		30	101.41		30	86.16		30	74.90
	40	122.78		40	101.11		40	85.94		40	74.73
	50	122.34		50	100.81		50	85.73		50	74.57
47	0	121.91	57	0	100.52	67	0	85.52	77	0	74.41
	10	121.48		10	100.22		10	85.30		10	74.25
	20	121.05		20	99.93		20	85.09		20	74.09
	30	120.62		30	99.64		30	84.88		30	73.93
	40	120.20		40	99.36		40	84.67		40	73.77
	50	119.78		50	99.07		50	84.46		50	73.61
48	0	119.38	58	0	98.79	68	0	84.26	78	0	73.46
	10	118.95		10	98.50		10	84.05		10	73.30
	20	118.54		20	98.22		20	83.85		20	73.14
	30	118.13		30	97.94		30	83.64		30	72.99
	40	117.73		40	97.66		40	83.44		40	72.83
	50	117.33		50	97.39		50	83.24		50	72.68
49	0	116.93	59	0	97.11	69	0	83.04	79	0	72.53
	10	116.53		10	96.84		10	82.84		10	72.37
	20	116.14		20	96.56		20	82.64		20	72.22
	30	115.75		30	96.30		30	82.44		30	72.07
	40	115.36		40	96.03		40	82.24		40	71.92
	50	114.97		50	95.76		50	82.05		50	71.77
50	0	114.59	60	0	95.49	70	0	81.85	80	0	71.62

TABLE 4. RADII FROM ARC DEFINITION

Degree of Curve	Radius of Curve	Degree of Curve	Radius of Curve	Degree of Curve	Radius of Curve	Degree of Curve	Radius of Curve
° /		° /		° /		° /	
80 0	71.62	90 0	63.66	100 0	57.30	110 0	52.09
10	71.47	10	63.54	10	57.20	10	52.01
20	71.32	20	63.43	20	57.11	20	51.93
30	71.17	30	63.31	30	57.01	30	51.85
40	71.03	40	63.19	40	56.92	40	51.77
50	70.88	50	63.08	50	56.82	50	51.70
81 0	70.74	91 0	62.96	101 0	56.73	111 0	51.62
10	70.59	10	62.85	10	56.64	10	51.54
20	70.44	20	62.73	20	56.54	20	51.46
30	70.30	30	62.62	30	56.45	30	51.39
40	70.16	40	62.50	40	56.36	40	51.31
50	70.02	50	62.39	50	56.26	50	51.23
82 0	69.87	92 0	62.28	102 0	56.17	112 0	51.16
10	69.73	10	62.16	10	56.08	10	51.08
20	69.59	20	62.05	20	55.99	20	51.01
30	69.45	30	61.94	30	55.90	30	50.93
40	69.31	40	61.83	40	55.81	40	50.85
50	69.17	50	61.72	50	55.72	50	50.78
83 0	69.03	93 0	61.61	103 0	55.63	113 0	50.70
10	68.89	10	61.50	10	55.54	10	50.63
20	68.75	20	61.39	20	55.45	20	50.56
30	68.62	30	61.28	30	55.36	30	50.48
40	68.48	40	61.17	40	55.27	40	50.41
50	68.34	50	61.06	50	55.18	50	50.33
84 0	68.21	94 0	60.95	104 0	55.09	114 0	50.26
10	68.07	10	60.84	10	55.00	10	50.19
20	67.94	20	60.74	20	54.92	20	50.11
30	67.81	30	60.63	30	54.83	30	50.04
40	67.67	40	60.52	40	54.74	40	49.97
50	67.54	50	60.42	50	54.65	50	49.89
85 0	67.41	95 0	60.31	105 0	54.57	115 0	49.82
10	67.27	10	60.21	10	54.48	10	49.75
20	67.14	20	60.10	20	54.39	20	49.68
30	67.01	30	60.00	30	54.31	30	49.61
40	66.88	40	59.89	40	54.22	40	49.54
50	66.75	50	59.79	50	54.14	50	49.46
86 0	66.62	96 0	59.68	106 0	54.05	116 0	49.39
10	66.49	10	59.58	10	53.97	10	49.32
20	66.36	20	59.48	20	53.88	20	49.25
30	66.24	30	59.37	30	53.80	30	49.18
40	66.11	40	59.27	40	53.71	40	49.11
50	65.98	50	59.17	50	53.63	50	49.04
87 0	65.86	97 0	59.07	107 0	53.55	117 0	48.97
10	65.73	10	58.97	10	53.46	10	48.90
20	65.61	20	58.86	20	53.38	20	48.83
30	65.48	30	58.76	30	53.30	30	48.76
40	65.36	40	58.66	40	53.22	40	48.69
50	65.23	50	58.56	50	53.13	50	48.62
88 0	65.11	98 0	58.46	108 0	53.05	118 0	48.56
10	64.98	10	58.36	10	52.97	10	48.49
20	64.86	20	58.27	20	52.89	20	48.42
30	64.74	30	58.17	30	52.81	30	48.35
40	64.62	40	58.07	40	52.73	40	48.28
50	64.50	50	57.97	50	52.64	50	48.22
89 0	64.38	99 0	57.87	109 0	52.56	119 0	48.15
10	64.26	10	57.78	10	52.48	10	48.08
20	64.14	20	57.68	20	52.40	20	48.01
30	64.02	30	57.58	30	52.32	30	47.95
40	63.90	40	57.49	40	52.24	40	47.88
50	63.78	50	57.39	50	52.17	50	47.81
90 0	63.66	100 0	57.30	110 0	52.09	120 0	47.75

TABLE 5. RADII FROM CHORD DEFINITION

Deg. D.	Radius R.	Deg. D.	Radius R.	Deg. D.	Radius R.	Deg. D.	Radius R.
° /		° /		° /		° /	
0 0	Infinite	1 0	5729.65	2 0	2864.93	3 0	1910.08
1 1	343775.	1 1	5635.72	1 1	2841.26	1 1	1899.53
2 2	171887.	2 2	5544.83	2 2	2817.97	2 2	1889.09
3 3	114592.	3 3	5456.82	3 3	2795.06	3 3	1878.77
4 4	85943.7	4 4	5371.56	4 4	2772.53	4 4	1868.56
5 5	68754.9	5 5	5288.92	5 5	2750.35	5 5	1858.47
6 6	57295.8	6 6	5208.79	6 6	2728.52	6 6	1848.48
7 7	49110.7	7 7	5131.05	7 7	2707.04	7 7	1838.59
8 8	42971.8	8 8	5055.59	8 8	2685.89	8 8	1828.82
9 9	38197.2	9 9	4982.33	9 9	2665.08	9 9	1819.14
10 10	34377.5	10 10	4911.15	10 10	2644.58	10 10	1809.57
11 11	31252.3	11 11	4841.98	11 11	2624.39	11 11	1800.10
12 12	28647.8	12 12	4774.74	12 12	2604.51	12 12	1790.73
13 13	26444.2	13 13	4709.33	13 13	2584.93	13 13	1781.45
14 14	24555.4	14 14	4645.69	14 14	2565.65	14 14	1772.27
15 15	22918.3	15 15	4583.75	15 15	2546.64	15 15	1763.18
16 16	21485.9	16 16	4523.44	16 16	2527.92	16 16	1754.19
17 17	20222.1	17 17	4464.70	17 17	2509.47	17 17	1745.29
18 18	19098.6	18 18	4407.46	18 18	2491.29	18 18	1736.48
19 19	18093.4	19 19	4351.67	19 19	2473.37	19 19	1727.75
20 20	17188.8	20 20	4297.28	20 20	2455.70	20 20	1719.12
21 21	16370.2	21 21	4244.23	21 21	2438.29	21 21	1710.57
22 22	15626.1	22 22	4192.47	22 22	2421.12	22 22	1702.10
23 23	14946.7	23 23	4141.96	23 23	2404.19	23 23	1693.72
24 24	14324.0	24 24	4092.66	24 24	2387.50	24 24	1685.42
25 25	13751.0	25 25	4044.51	25 25	2371.04	25 25	1677.20
26 26	13222.1	26 26	3997.49	26 26	2354.80	26 26	1669.06
27 27	12732.4	27 27	3951.54	27 27	2338.78	27 27	1661.00
28 28	12277.7	28 28	3906.64	28 28	2322.98	28 28	1653.01
29 29	11854.3	29 29	3862.74	29 29	2307.39	29 29	1645.11
30 30	11459.2	30 30	3819.83	30 30	2292.01	30 30	1637.28
31 31	11089.6	31 31	3777.85	31 31	2276.84	31 31	1629.52
32 32	10743.0	32 32	3736.79	32 32	2261.86	32 32	1621.84
33 33	10417.5	33 33	3696.61	33 33	2247.08	33 33	1614.22
34 34	10111.1	34 34	3657.29	34 34	2232.49	34 34	1606.68
35 35	9822.18	35 35	3618.80	35 35	2218.09	35 35	1599.21
36 36	9549.34	36 36	3581.10	36 36	2203.87	36 36	1591.81
37 37	9291.25	37 37	3544.19	37 37	2189.84	37 37	1584.48
38 38	9046.75	38 38	3508.02	38 38	2175.98	38 38	1577.21
39 39	8814.78	39 39	3472.59	39 39	2162.30	39 39	1570.01
40 40	8594.42	40 40	3437.87	40 40	2148.79	40 40	1562.88
41 41	8384.80	41 41	3403.83	41 41	2135.44	41 41	1555.81
42 42	8185.16	42 42	3370.46	42 42	2122.26	42 42	1548.80
43 43	7994.81	43 43	3337.74	43 43	2109.24	43 43	1541.86
44 44	7813.11	44 44	3305.65	44 44	2096.39	44 44	1534.98
45 45	7639.49	45 45	3274.17	45 45	2083.68	45 45	1528.16
46 46	7473.42	46 46	3243.29	46 46	2071.13	46 46	1521.40
47 47	7314.41	47 47	3212.98	47 47	2058.73	47 47	1514.70
48 48	7162.03	48 48	3183.23	48 48	2046.48	48 48	1508.06
49 49	7015.87	49 49	3154.03	49 49	2034.37	49 49	1501.48
50 50	6875.55	50 50	3125.36	50 50	2022.41	50 50	1494.95
51 51	6740.74	51 51	3097.20	51 51	2010.59	51 51	1488.48
52 52	6611.12	52 52	3069.55	52 52	1998.90	52 52	1482.07
53 53	6486.38	53 53	3042.39	53 53	1987.35	53 53	1475.71
54 54	6366.26	54 54	3015.71	54 54	1975.93	54 54	1469.41
55 55	6250.51	55 55	2989.48	55 55	1964.64	55 55	1463.16
56 56	6138.90	56 56	2963.72	56 56	1953.48	56 56	1456.96
57 57	6031.20	57 57	2938.39	57 57	1942.44	57 57	1450.81
58 58	5927.22	58 58	2913.49	58 58	1931.53	58 58	1444.72
59 59	5826.76	59 59	2889.01	59 59	1920.75	59 59	1438.68
60 60	5729.65	60 60	2864.93	60 60	1910.08	60 60	1432.69

TABLE 5. RADII FROM CHORD DEFINITION

Deg. D.	Radius R.	Deg. D.	Radius R.	Deg. D.	Radius R.	Deg. D.	Radius R.
° /		° /		° /		° /	
4 0	1432.69	5 0	1146.28	6 0	955.366	7 0	819.020
1	1426.74	1	1142.47	1	952.722	1	817.077
2	1420.85	2	1138.69	2	950.093	2	815.144
3	1415.01	3	1134.94	3	947.478	3	813.219
4	1409.21	4	1131.21	4	944.877	4	811.303
5	1403.46	5	1127.50	5	942.291	5	809.397
6	1397.76	6	1123.82	6	939.719	6	807.499
7	1392.10	7	1120.16	7	937.161	7	805.611
8	1386.49	8	1116.52	8	934.616	8	803.731
9	1380.92	9	1112.91	9	932.086	9	801.860
10	1375.40	10	1109.33	10	929.569	10	799.997
11	1369.92	11	1105.76	11	927.066	11	798.144
12	1364.49	12	1102.22	12	924.576	12	796.299
13	1359.10	13	1098.70	13	922.100	13	794.462
14	1353.75	14	1095.20	14	919.637	14	792.634
15	1348.45	15	1091.73	15	917.187	15	790.814
16	1343.18	16	1088.28	16	914.750	16	789.003
17	1337.96	17	1084.85	17	912.326	17	787.200
18	1332.77	18	1081.44	18	909.915	18	785.405
19	1327.63	19	1078.05	19	907.517	19	783.618
20	1322.53	20	1074.68	20	905.131	20	781.840
21	1317.46	21	1071.34	21	902.758	21	780.069
22	1312.43	22	1068.01	22	900.397	22	778.307
23	1307.45	23	1064.71	23	898.048	23	776.552
24	1302.50	24	1061.43	24	895.712	24	774.806
25	1297.58	25	1058.16	25	893.388	25	773.067
26	1292.71	26	1054.92	26	891.076	26	771.336
27	1287.87	27	1051.70	27	888.776	27	769.613
28	1283.07	28	1048.49	28	886.488	28	767.897
29	1278.30	29	1045.31	29	884.211	29	766.190
30	1273.57	30	1042.14	30	881.946	30	764.489
31	1268.87	31	1039.00	31	879.693	31	762.797
32	1264.21	32	1035.87	32	877.451	32	761.112
33	1259.58	33	1032.76	33	875.221	33	759.434
34	1254.98	34	1029.67	34	873.002	34	757.764
35	1250.42	35	1026.60	35	870.795	35	756.101
36	1245.89	36	1023.55	36	868.598	36	754.445
37	1241.40	37	1020.51	37	866.412	37	752.796
38	1236.94	38	1017.49	38	864.238	38	751.155
39	1232.51	39	1014.50	39	862.075	39	749.521
40	1228.11	40	1011.51	40	859.922	40	747.894
41	1223.74	41	1008.55	41	857.780	41	746.274
42	1219.40	42	1005.60	42	855.648	42	744.661
43	1215.09	43	1002.67	43	853.527	43	743.055
44	1210.82	44	999.762	44	851.417	44	741.456
45	1206.57	45	996.867	45	849.317	45	739.864
46	1202.36	46	993.988	46	847.228	46	738.279
47	1198.17	47	991.126	47	845.148	47	736.701
48	1194.01	48	988.280	48	843.080	48	735.129
49	1189.88	49	985.451	49	841.021	49	733.564
50	1185.78	50	982.638	50	838.972	50	732.005
51	1181.71	51	979.840	51	836.933	51	730.454
52	1177.66	52	977.060	52	834.904	52	728.909
53	1173.65	53	974.294	53	832.885	53	727.370
54	1169.66	54	971.544	54	830.876	54	725.838
55	1165.70	55	968.810	55	828.876	55	724.312
56	1161.76	56	966.091	56	826.886	56	722.793
57	1157.85	57	963.387	57	824.905	57	721.280
58	1153.97	58	960.698	58	822.934	58	719.774
59	1150.11	59	958.025	59	820.973	59	718.273
60	1146.28	60	955.366	60	819.020	60	716.779

TABLE 5. RADII FROM CHORD DEFINITION

Deg. D.	Radius R.	Deg. D.	Radius R.	Deg. D.	Radius R.	Deg. D.	Radius R.
° /		° /		° /		° /	
8 0	716.779	9 0	637.275	10 0	573.686	12 0	478.339
1	715.291	1	636.099	2	571.784	2	477.018
2	713.810	2	634.928	4	569.896	4	475.705
3	712.335	3	633.761	6	568.020	6	474.400
4	710.865	4	632.599	8	566.156	8	473.102
5	709.402	5	631.440	10	564.305	10	471.810
6	707.945	6	630.286	12	562.466	12	470.526
7	706.493	7	629.136	14	560.638	14	469.249
8	705.048	8	627.991	16	558.823	16	467.978
9	703.609	9	626.849	18	557.019	18	466.715
10	702.175	10	625.712				
				20	555.227	20	465.459
11	700.748	11	624.579	22	553.447	22	464.209
12	699.326	12	623.450	24	551.678	24	462.966
13	697.910	13	622.325	26	549.920	26	461.729
14	696.499	14	621.203	28	548.174	28	460.500
15	695.095	15	620.087	30	546.438	30	459.276
16	693.696	16	618.974	32	544.714	32	458.060
17	692.302	17	617.865	34	543.001	34	456.850
18	690.914	18	616.760	36	541.298	36	455.646
19	689.532	19	615.660	38	539.606	38	454.449
20	688.156	20	614.563				
				40	537.924	40	453.259
21	686.785	21	613.470	42	536.253	42	452.073
22	685.419	22	612.380	44	534.593	44	450.894
23	684.059	23	611.295	46	532.943	46	449.722
24	682.704	24	610.214	48	531.303	48	448.556
25	681.354	25	609.136	50	529.673	50	447.395
26	680.010	26	608.062	52	528.053	52	446.241
27	678.671	27	606.992	54	526.443	54	445.093
28	677.338	28	605.926	56	524.843	56	443.951
29	676.008	29	604.864	58	523.252	58	442.814
30	674.686	30	603.805				
				11 0	521.671	13 0	441.684
31	673.369	31	602.750	2	520.100	2	440.559
32	672.056	32	601.698	4	518.539	4	439.440
33	670.748	33	600.651	6	516.986	6	438.326
34	669.446	34	599.607	8	515.443	8	437.219
35	668.148	35	598.567	10	513.909	10	436.117
36	666.856	36	597.530	12	512.385	12	435.020
37	665.568	37	596.497	14	510.869	14	433.929
38	664.286	38	595.467	16	509.363	16	432.844
39	663.008	39	594.441	18	507.865	18	431.764
40	661.736	40	593.419				
				20	506.376	20	430.690
41	660.468	41	592.400	22	504.896	22	429.620
42	659.205	42	591.384	24	503.425	24	428.557
43	657.947	43	590.372	26	501.962	26	427.498
44	656.694	44	589.364	28	500.507	28	426.445
45	655.446	45	588.359	30	499.061	30	425.396
46	654.202	46	587.357	32	497.624	32	424.354
47	652.963	47	586.359	34	496.195	34	423.316
48	651.729	48	585.364	36	494.774	36	422.283
49	650.499	49	584.373	38	493.361	38	421.256
50	649.274	50	583.385				
				40	491.956	40	420.233
51	648.054	51	582.400	42	490.559	42	419.215
52	646.838	52	581.419	44	489.171	44	418.203
53	645.627	53	580.441	46	487.790	46	417.195
54	644.420	54	579.466	48	486.417	48	416.192
55	643.218	55	578.494	50	485.051	50	415.194
56	642.021	56	577.526	52	483.694	52	414.201
57	640.828	57	576.561	54	482.344	54	413.212
58	639.639	58	575.599	56	481.001	56	412.229
59	638.455	59	574.641	58	479.666	58	411.250
60	637.275	60	573.686	60	478.339	60	410.275

TABLE 5. RADII FROM CHORD DEFINITION

Deg. D.	Radius R.	Deg. D.	Radius R.	Deg. D.	Radius R.	Deg. D.	Radius R.
° /		° /		° /		° /	
14 0	410.275	16 0	359.265	18 0	319.623	20 0	287.939
2	409.306	2	358.523	2	319.037	10	285.583
4	408.341	4	357.784	4	318.453	20	283.267
6	407.380	6	357.048	6	317.871	30	280.988
8	406.424	8	356.315	8	317.292	40	278.746
10	405.473	10	355.585	10	316.715	50	276.541
12	404.526	12	354.859	12	316.139	21 0	274.370
14	403.583	14	354.135	14	315.566	10	272.234
16	402.645	16	353.414	16	314.993	20	270.132
18	401.712	18	352.696	18	314.426	30	268.062
						40	266.024
20	400.782	20	351.981	20	313.860	50	264.018
22	399.857	22	351.269	22	313.295		
24	398.937	24	350.560	24	312.732	22 0	262.042
26	398.020	26	349.854	26	312.172	10	260.098
28	397.108	28	349.150	28	311.613	20	258.180
30	396.200	30	348.450	30	311.056	30	256.292
32	395.296	32	347.752	32	310.502	40	254.431
34	394.396	34	347.057	34	309.949	50	252.599
36	393.501	36	346.365	36	309.399	23 0	250.793
38	392.609	38	345.676	38	308.850	10	249.013
						20	247.258
40	391.722	40	344.990	40	308.303	30	245.529
42	390.838	42	344.306	42	307.759	40	243.825
44	389.959	44	343.625	44	307.216	50	242.144
46	389.084	46	342.947	46	306.675		
48	388.212	48	342.271	48	306.136	24 0	240.487
50	387.345	50	341.598	50	305.599	10	238.853
52	386.481	52	340.928	52	305.064	20	237.241
54	385.621	54	340.260	54	304.531	30	235.652
56	384.765	56	339.595	56	304.000	40	234.084
58	383.913	58	338.933	58	303.470	50	232.537
15 0	383.065	17 0	338.273	19 0	302.943	25 0	231.011
2	382.220	2	337.616	2	302.417	10	229.506
4	381.380	4	336.962	4	301.893	20	228.020
6	380.543	6	336.310	6	301.371	30	226.555
8	379.709	8	335.660	8	300.851	40	225.108
10	378.880	10	335.013	10	300.333	50	223.680
12	378.054	12	334.369	12	299.816	26 0	222.271
14	377.231	14	333.727	14	299.302	10	220.879
16	376.412	16	333.088	16	298.789	20	219.506
18	375.597	18	332.451	18	298.278	30	218.150
						40	216.811
20	374.786	20	331.816	20	297.768	50	215.489
22	373.977	22	331.184	22	297.260		
24	373.173	24	330.555	24	296.755	27 0	214.183
26	372.372	26	329.928	26	296.250	10	212.893
28	371.574	28	329.303	28	295.748	20	211.620
30	370.780	30	328.689	30	295.247	30	210.362
32	369.989	32	328.061	32	294.748	40	209.119
34	369.202	34	327.443	34	294.251	50	207.891
36	368.418	36	326.828	36	293.756		
38	367.637	38	326.215	38	293.262	28 0	206.678
						10	205.480
40	366.859	40	325.604	40	292.770	20	204.296
42	366.085	42	324.996	42	292.279	30	203.125
44	365.315	44	324.390	44	291.790	40	201.969
46	364.547	46	323.786	46	291.303	50	200.826
48	363.783	48	323.184	48	290.818	29 0	199.696
50	363.022	50	322.585	50	290.334	10	198.580
52	362.264	52	321.989	52	289.851	20	197.476
54	361.510	54	321.394	54	289.371	30	196.385
56	360.758	56	320.801	56	288.892	40	195.306
58	360.010	58	320.211	58	288.414	50	194.240
60	359.265	60	319.623	60	287.939	30 0	193.185

Radius	Deflection for 1 Ft. of Arc	Deflections for other Arc lengths		
		Length	Deflection	Chord
15	114.592	10	19 05.92	9.82
20	85.944	10	14 19.44	9.90
25	68.756	10	11 27.56	9.93
30	57.296	10	9 32.96	9.95
35	49.110	10	8 11.10	9.96
40	42.972	10	7 09.72	9.97
45	38.198	10	6 21.98	9.98
50	34.378	10	5 43.78	9.98
55	31.252	10	5 12.52	9.99
60	28.648	10	4 46.48	9.99
65	26.444	10	4 24.44	9.99
70	24.555	10	4 05.55	9.99
75	22.918	10	3 49.18	9.99
80	21.486	10	3 34.86	10.00
85	20.222	10	3 22.22	10.00
90	19.099	10	3 10.99	10.00
95	18.094	10	3 00.94	10.00
100	17.189	25	7 09.72	24.93
110	15.626	25	6 30.65	24.95
120	14.324	25	5 58.10	24.96
130	13.222	25	5 30.55	24.96
140	12.278	25	5 06.94	24.96
150	11.459	25	4 46.48	24.97
160	10.743	25	4 28.58	24.97
170	10.111	25	4 12.77	24.97
180	9.549	25	3 58.73	24.98
190	9.047	25	3 46.17	24.98
200	8.594	25	3 34.85	24.98
225	7.640	25	3 10.99	24.99
250	6.876	25	2 51.89	24.99
275	6.250	25	2 36.26	24.99
300	5.730	50	4 46.48	49.94
325	5.289	50	4 24.44	49.95
350	4.911	50	4 05.56	49.96
375	4.584	50	3 49.18	49.96
400	4.297	50	3 34.86	49.97
450	3.820	50	3 10.99	49.97
500	3.438	50	2 51.89	49.98
550	3.125	50	2 36.26	49.98
600	2.865	50	2 23.24	49.99
650	2.644	50	2 12.22	50.00
700	2.456	100	4 05.56	99.92
750	2.292	100	3 49.19	99.93
800	2.149	100	3 34.86	99.93
850	2.022	100	3 22.22	99.94
900	1.910	100	3 10.99	99.95
950	1.809	100	3 00.93	99.95
1000	1.719	100	2 51.89	99.96
1100	1.563	100	2 36.26	99.96
1200	1.432	100	2 23.24	99.97
1300	1.322	100	2 12.22	99.97
1400	1.228	100	2 02.78	99.98
1500	1.146	100	1 54.59	99.98

Radius	Deflection for 1 Ft. of Arc	Deflections for other Arc lengths		
		Length	Deflection °	Chord
1600	1.074	100	1 47.43	99.98
1700	1.011	100	1 41.11	99.99
1800	0.955	100	1 35.49	99.99
1900	0.905	100	1 30.47	100.00
2000	0.859	100	1 25.95	100.00
2100	0.819	100	1 21.85	100.00
2200	0.781	100	1 18.13	100.00
2300	0.747	100	1 14.73	100.00
2400	0.716	100	1 11.62	100.00
2500	0.688	100	1 08.75	100.00
2600	0.661	100	1 06.11	100.00
2700	0.637	100	1 03.66	100.00
2800	0.614	100	1 01.38	100.00
2900	0.593	100	0 59.27	100.00
3000	0.573	100	0 57.29	100.00
3100	0.554	100	0 55.44	100.00
3200	0.537	100	0 53.71	100.00
3300	0.521	100	0 52.09	100.00
3400	0.506	100	0 50.55	100.00
3500	0.491	100	0 49.11	100.00
3600	0.477	100	0 47.74	100.00
3700	0.465	100	0 46.45	100.00
3800	0.452	100	0 45.23	100.00
3900	0.441	100	0 44.07	100.00
4000	0.430	100	0 42.97	100.00
4100	0.419	100	0 41.92	100.00
4200	0.409	100	0 40.93	100.00
4300	0.399	100	0 39.98	100.00
4400	0.391	100	0 39.06	100.00
4500	0.382	100	0 38.20	100.00
4600	0.374	100	0 37.37	100.00
4700	0.366	100	0 36.54	100.00
4800	0.358	100	0 35.81	100.00
4900	0.351	100	0 35.08	100.00
5000	0.344	100	0 34.38	100.00
5100	0.337	100	0 33.70	100.00
5200	0.330	100	0 33.06	100.00
5300	0.324	100	0 32.43	100.00
5400	0.318	100	0 31.83	100.00
5500	0.313	100	0 31.25	100.00
5600	0.307	100	0 30.69	100.00
5700	0.301	100	0 30.16	100.00
5800	0.296	100	0 29.64	100.00
5900	0.291	100	0 29.13	100.00
6000	0.286	100	0 28.65	100.00
6100	0.282	100	0 28.18	100.00
6200	0.277	100	0 27.72	100.00
6300	0.273	100	0 27.29	100.00
6400	0.269	100	0 26.86	100.00
6500	0.264	100	0 26.44	100.00
6600	0.260	100	0 26.04	100.00
6700	0.257	100	0 25.65	100.00
6800	0.253	100	0 25.28	100.00
6900	0.249	100	0 24.91	100.00
7000	0.246	100	0 24.55	100.00

TABLE 7. FUNCTIONS OF A ONE-DEGREE CURVE

Angle Δ °	Tang. Dist.	Ext. Dist.	Long Chord	Angle Δ °	Tang. Dist.	Ext. Dist.	Long Chord
1 0	50.00	0.22	100.00	11 0	551.70	26.50	1098.3
10	58.33	0.30	116.67	10	560.11	27.31	1114.9
20	66.67	0.39	133.33	20	568.53	28.14	1131.5
30	75.00	0.49	150.00	30	576.95	28.97	1148.0
40	83.34	0.61	166.67	40	585.36	29.82	1164.6
50	91.68	0.73	183.33	50	593.79	30.69	1181.2
2 0	100.01	0.87	200.00	12 0	602.21	31.56	1197.8
10	108.35	1.02	216.67	10	610.64	32.45	1214.4
20	116.68	1.19	233.33	20	619.07	33.35	1230.9
30	125.02	1.36	250.00	30	627.50	34.26	1247.5
40	133.36	1.55	266.67	40	635.93	35.18	1264.1
50	141.70	1.75	283.33	50	644.37	36.12	1280.6
3 0	150.04	1.96	300.00	13 0	652.81	37.07	1297.2
10	158.38	2.19	316.67	10	661.25	38.03	1313.7
20	166.72	2.43	333.33	20	669.70	39.01	1330.3
30	175.06	2.67	350.00	30	678.15	39.99	1346.8
40	183.40	2.93	366.67	40	686.60	40.99	1363.4
50	191.74	3.21	383.33	50	695.06	42.00	1379.9
4 0	200.08	3.49	399.9	14 0	703.51	43.03	1396.5
10	208.43	3.79	416.6	10	711.97	44.07	1413.0
20	216.77	4.10	433.3	20	720.44	45.12	1429.6
30	225.12	4.42	449.9	30	728.90	46.18	1446.1
40	233.47	4.76	466.6	40	737.37	47.25	1462.7
50	241.81	5.10	483.2	50	745.85	48.34	1479.2
5 0	250.16	5.46	499.9	15 0	754.32	49.44	1495.8
10	258.51	5.83	516.5	10	762.80	50.55	1512.3
20	266.86	6.21	533.2	20	771.29	51.68	1528.8
30	275.21	6.61	549.8	30	779.77	52.82	1545.3
40	283.57	7.01	566.5	40	788.26	53.97	1561.8
50	291.92	7.43	583.1	50	796.75	55.13	1578.3
6 0	300.28	7.86	599.8	16 0	805.25	56.31	1594.8
10	308.64	8.31	616.4	10	813.75	57.50	1611.3
20	317.00	8.76	633.1	20	822.25	58.70	1627.8
30	325.35	9.23	649.7	30	830.76	59.91	1644.3
40	333.71	9.71	666.3	40	839.27	61.14	1660.8
50	342.08	10.20	683.0	50	847.78	62.38	1677.3
7 0	350.44	10.71	699.6	17 0	856.30	63.63	1693.8
10	358.80	11.22	716.2	10	864.82	64.90	1710.3
20	367.17	11.75	732.8	20	873.35	66.18	1726.7
30	375.54	12.29	749.4	30	881.88	67.47	1743.2
40	383.91	12.85	766.1	40	890.41	68.77	1759.7
50	392.28	13.41	782.7	50	898.95	70.09	1776.1
8 0	400.65	13.99	799.4	18 0	907.49	71.42	1792.6
10	409.03	14.58	816.0	10	916.03	72.76	1809.1
20	417.41	15.18	832.6	20	924.58	74.12	1825.5
30	425.79	15.80	849.2	30	933.13	75.49	1842.0
40	434.17	16.43	865.8	40	941.69	76.87	1858.5
50	442.55	17.07	882.4	50	950.25	78.26	1875.0
9 0	450.93	17.72	899.0	19 0	958.81	79.67	1891.4
10	459.32	18.38	915.7	10	967.38	81.09	1907.8
20	467.71	19.06	932.3	20	975.96	82.53	1924.2
30	476.10	19.75	948.9	30	984.53	83.97	1940.6
40	484.49	20.45	965.5	40	993.12	85.43	1957.1
50	492.88	21.16	982.1	50	1001.70	86.90	1973.5
10 0	501.28	21.89	998.7	20 0	1010.3	88.39	1989.9
10	509.68	22.62	1015.3	10	1018.9	89.89	2006.3
20	518.08	23.38	1031.9	20	1027.5	91.40	2022.7
30	526.48	24.14	1048.5	30	1036.1	92.92	2039.1
40	534.89	24.91	1065.1	40	1044.7	94.46	2055.5
50	543.29	25.70	1081.7	50	1053.3	96.01	2071.9
11 0	551.70	26.50	1098.3	21 0	1061.9	97.58	2088.3

TABLE 7. FUNCTIONS OF A ONE-DEGREE CURVE

Angle Δ °		Tang. Dist.	Ext. Dist.	Long Chord	Angle Δ °		Tang. Dist.	Ext. Dist.	Long Chord
21	0	1061.9	97.58	2088.3	31	0	1589.0	216.3	3062.4
	10	1070.6	99.16	2104.7		10	1598.0	218.7	3078.4
	20	1079.2	100.75	2121.1		20	1606.9	221.1	3094.5
	30	1087.8	102.35	2137.5		30	1615.9	223.5	3110.5
	40	1096.4	103.97	2153.9		40	1624.9	226.0	3126.5
	50	1105.1	105.60	2170.2		50	1633.9	228.4	3142.6
22	0	1113.7	107.24	2186.6	32	0	1643.0	230.9	3158.6
	10	1122.4	108.90	2202.9		10	1652.0	233.4	3174.6
	20	1131.0	110.57	2219.3		20	1661.0	235.9	3190.6
	30	1139.7	112.25	2235.6		30	1670.0	238.4	3206.6
	40	1148.4	113.95	2252.0		40	1679.1	241.0	3222.6
	50	1157.0	115.66	2268.3		50	1688.1	243.5	3238.6
23	0	1165.7	117.38	2284.7	33	0	1697.2	246.1	3254.6
	10	1174.4	119.12	2301.0		10	1706.3	248.7	3270.6
	20	1183.1	120.87	2317.3		20	1715.3	251.3	3286.6
	30	1191.8	122.63	2333.6		30	1724.4	253.9	3302.5
	40	1200.5	124.41	2349.9		40	1733.5	256.5	3318.5
	50	1209.2	126.20	2366.2		50	1742.6	259.1	3334.4
24	0	1217.9	128.00	2382.5	34	0	1751.7	261.8	3350.4
	10	1226.6	129.82	2398.8		10	1760.8	264.5	3366.3
	20	1235.3	131.65	2415.1		20	1770.0	267.2	3382.2
	30	1244.0	133.50	2431.4		30	1779.1	269.9	3398.1
	40	1252.8	135.35	2447.7		40	1788.2	272.6	3414.0
	50	1261.5	137.23	2464.0		50	1797.4	275.3	3429.9
25	0	1270.2	139.1	2480.2	35	0	1806.6	278.1	3445.8
	10	1279.0	141.0	2496.4		10	1815.7	280.8	3461.7
	20	1287.7	142.9	2512.7		20	1824.9	283.6	3477.6
	30	1296.5	144.8	2529.0		30	1834.1	286.4	3493.5
	40	1305.3	146.8	2545.2		40	1843.3	289.2	3509.3
	50	1314.0	148.8	2561.4		50	1852.5	292.0	3525.2
26	0	1322.8	150.7	2577.7	36	0	1861.7	294.9	3541.1
	10	1331.6	152.7	2593.9		10	1870.9	297.7	3557.0
	20	1340.4	154.7	2610.2		20	1880.1	300.6	3572.8
	30	1349.2	156.7	2626.4		30	1889.4	303.5	3588.6
	40	1358.0	158.7	2642.6		40	1898.6	306.4	3604.4
	50	1366.8	160.8	2658.9		50	1907.9	309.3	3620.2
27	0	1375.6	162.8	2675.1	37	0	1917.1	312.2	3636.0
	10	1384.4	164.9	2691.3		10	1926.4	315.2	3651.8
	20	1393.2	166.9	2707.5		20	1935.7	318.1	3667.6
	30	1402.0	169.0	2723.6		30	1945.0	321.1	3683.3
	40	1410.9	171.1	2739.8		40	1954.3	324.1	3699.1
	50	1419.7	173.3	2756.0		50	1963.6	327.1	3714.9
28	0	1428.6	175.4	2772.2	38	0	1972.9	330.2	3730.7
	10	1437.4	177.6	2788.4		10	1982.2	333.2	3746.4
	20	1446.3	179.7	2804.5		20	1991.5	336.3	3762.2
	30	1455.1	181.9	2820.7		30	2000.9	339.3	3777.9
	40	1464.0	184.1	2836.9		40	2010.2	342.4	3793.7
	50	1472.9	186.3	2853.0		50	2019.6	345.5	3809.4
29	0	1481.8	188.5	2869.2	39	0	2029.0	348.6	3825.1
	10	1490.7	190.7	2885.3		10	2038.4	351.8	3840.8
	20	1499.6	193.0	2901.4		20	2047.8	354.9	3856.5
	30	1508.5	195.3	2917.5		30	2057.2	358.1	3872.2
	40	1517.4	197.5	2933.7		40	2066.6	361.3	3887.9
	50	1526.3	199.8	2949.8		50	2076.0	364.5	3903.5
30	0	1535.3	202.1	2965.9	40	0	2085.4	367.7	3919.2
	10	1544.2	204.4	2982.0		10	2094.9	371.0	3934.8
	20	1553.1	206.8	2998.1		20	2104.3	374.2	3950.5
	30	1562.1	209.1	3014.1		30	2113.8	377.5	3966.1
	40	1571.0	211.5	3030.2		40	2123.3	380.8	3981.8
	50	1580.0	213.9	3046.3		50	2132.7	384.1	3997.4
31	0	1589.0	216.3	3062.4	41	0	2142.2	387.4	4013.1

TABLE 7. FUNCTIONS OF A ONE-DEGREE CURVE

Angle Δ	Tang. Dist.	Ext. Dist.	Long Chord	Angle Δ	Tang. Dist.	Ext. Dist.	Long Chord
41 0	2142.2	387.4	4013.1	51 0	2732.9	618.4	4933.3
10	2151.7	390.7	4028.7	10	2743.1	622.8	4948.3
20	2161.2	394.1	4044.3	20	2753.4	627.2	4963.3
30	2170.8	397.4	4059.8	30	2763.7	631.7	4978.3
40	2180.3	400.8	4075.4	40	2773.9	636.2	4993.3
50	2189.9	404.2	4091.0	50	2784.2	640.7	5008.3
42 0	2199.4	407.6	4106.6	52 0	2794.5	645.2	5023.3
10	2209.0	411.1	4122.1	10	2804.9	649.7	5038.3
20	2218.6	414.5	4137.7	20	2815.2	654.3	5053.3
30	2228.1	418.0	4153.2	30	2825.6	658.8	5068.3
40	2237.7	421.5	4168.7	40	2835.9	663.4	5083.3
50	2247.3	425.0	4184.3	50	2846.3	668.0	5098.3
43 0	2257.0	428.5	4199.8	53 0	2856.7	672.7	5113.2
10	2266.6	432.0	4215.3	10	2867.1	677.3	5128.1
20	2276.2	435.6	4230.8	20	2877.5	682.0	5142.9
30	2285.9	439.2	4246.2	30	2888.0	686.7	5157.8
40	2295.6	442.8	4261.7	40	2898.4	691.4	5172.6
50	2305.2	446.4	4277.2	50	2908.9	696.1	5187.4
44 0	2314.9	450.0	4292.7	54 0	2919.4	700.9	5202.3
10	2324.6	453.6	4308.1	10	2929.9	705.7	5217.1
20	2334.3	457.3	4323.5	20	2940.4	710.5	5232.0
30	2344.1	461.0	4338.9	30	2951.0	715.3	5246.8
40	2353.8	464.6	4354.4	40	2961.5	720.1	5261.6
50	2363.5	468.4	4369.8	50	2972.1	725.0	5276.5
45 0	2373.3	472.1	4385.2	55 0	2982.7	729.9	5291.3
10	2383.1	475.8	4400.6	10	2993.3	734.8	5306.0
20	2392.8	479.6	4416.0	20	3003.9	739.7	5320.8
30	2402.6	483.4	4431.3	30	3014.5	744.6	5335.5
40	2412.4	487.2	4446.7	40	3025.2	749.6	5350.2
50	2422.3	491.0	4462.1	50	3035.8	754.6	5365.0
46 0	2432.1	494.8	4477.5	56 0	3046.5	759.6	5379.7
10	2441.9	498.7	4492.8	10	3057.2	764.6	5394.4
20	2451.8	502.5	4508.1	20	3067.9	769.7	5409.1
30	2461.7	506.4	4523.4	30	3078.7	774.7	5423.7
40	2471.5	510.3	4538.8	40	3089.4	779.8	5438.4
50	2481.4	514.3	4554.1	50	3100.2	784.9	5453.1
47 0	2491.3	518.2	4569.4	57 0	3110.9	790.1	5467.8
10	2501.2	522.2	4584.6	10	3121.7	795.2	5482.4
20	2511.2	526.1	4599.9	20	3132.6	800.4	5497.0
30	2521.1	530.1	4615.1	30	3143.4	805.6	5511.6
40	2531.1	534.2	4630.4	40	3154.2	810.9	5526.3
50	2541.0	538.2	4645.6	50	3165.1	816.1	5540.9
48 0	2551.0	542.2	4660.9	58 0	3176.0	821.4	5555.5
10	2561.0	546.3	4676.1	10	3186.9	826.7	5570.0
20	2571.0	550.4	4691.3	20	3197.8	832.0	5584.6
30	2581.0	554.5	4706.4	30	3208.8	837.3	5599.1
40	2591.0	558.6	4721.6	40	3219.7	842.7	5613.6
50	2601.1	562.8	4736.8	50	3230.7	848.1	5628.2
49 0	2611.2	566.9	4752.0	59 0	3241.7	853.5	5642.7
10	2621.2	571.1	4767.1	10	3252.7	858.9	5657.2
20	2631.3	575.3	4782.3	20	3263.7	864.4	5671.7
30	2641.4	579.5	4797.4	30	3274.8	869.9	5686.2
40	2651.5	583.8	4812.6	40	3285.8	875.4	5700.6
50	2661.6	588.0	4827.7	50	3296.9	880.9	5715.1
50 0	2671.8	592.3	4842.9	60 0	3308.0	886.4	5729.6
10	2681.9	596.6	4858.0	10	3319.1	892.0	5744.0
20	2692.1	600.9	4873.1	20	3330.3	897.6	5758.4
30	2702.3	605.3	4888.2	30	3341.4	903.2	5772.8
40	2712.5	609.6	4903.2	40	3352.6	908.8	5787.2
50	2722.7	614.0	4918.2	50	3363.8	914.5	5801.6
51 0	2732.9	618.4	4933.3	61 0	3375.0	920.2	5816.0

TABLE 7. FUNCTIONS OF A ONE-DEGREE CURVE

Angle Δ	Tang. Dist.	Ext. Dist.	Long Chord	Angle Δ	Tang. Dist.	Ext. Dist.	Long Chord
61 0	3375.0	920.2	5816.0	71 0	4086.9	1308.2	6654.4
10	3386.3	925.9	5830.3	10	4099.5	1315.6	6668.0
20	3397.5	931.6	5844.7	20	4112.1	1322.9	6681.5
30	3408.8	937.3	5859.0	30	4124.8	1330.3	6695.0
40	3420.1	943.1	5873.3	40	4137.4	1337.7	6708.5
50	3431.4	948.9	5887.7	50	4150.1	1345.1	6722.0
62 0	3442.7	954.8	5902.0	72 0	4162.8	1352.6	6735.5
10	3454.1	960.6	5916.2	10	4175.6	1360.1	6749.0
20	3465.4	966.5	5930.5	20	4188.5	1367.6	6762.5
30	3476.8	972.4	5944.7	30	4201.2	1375.2	6775.9
40	3488.3	978.3	5958.9	40	4214.0	1382.8	6789.3
50	3499.7	984.3	5973.2	50	4226.8	1390.4	6802.7
63 0	3511.1	990.2	5987.4	73 0	4239.7	1398.0	6816.1
10	3522.6	996.2	6001.6	10	4252.6	1405.7	6829.5
20	3534.1	1002.3	6015.8	20	4265.6	1413.5	6842.8
30	3545.6	1008.3	6029.9	30	4278.5	1421.2	6856.2
40	3557.2	1014.4	6044.1	40	4291.5	1429.0	6869.6
50	3568.7	1020.5	6058.3	50	4304.6	1436.8	6882.9
64 0	3580.3	1026.6	6072.5	74 0	4317.6	1444.6	6896.3
10	3591.9	1032.8	6086.6	10	4330.7	1452.5	6909.6
20	3603.5	1039.0	6100.7	20	4343.8	1460.4	6922.8
30	3615.1	1045.2	6114.8	30	4356.9	1468.4	6936.1
40	3626.8	1051.4	6128.9	40	4370.1	1476.4	6949.4
50	3638.5	1057.7	6143.0	50	4383.3	1484.4	6962.6
65 0	3650.2	1063.9	6157.0	75 0	4396.5	1492.4	6975.9
10	3661.9	1070.2	6171.0	10	4409.8	1500.5	6989.1
20	3673.7	1076.6	6185.1	20	4423.1	1508.6	7002.3
30	3685.4	1082.9	6199.1	30	4436.4	1516.7	7015.4
40	3697.2	1089.3	6213.2	40	4449.7	1524.9	7028.6
50	3709.0	1095.7	6227.2	50	4463.1	1533.1	7041.8
66 0	3720.9	1102.2	6241.2	76 0	4476.5	1541.4	7055.0
10	3732.7	1108.6	6255.1	10	4489.9	1549.7	7068.1
20	3744.6	1115.1	6269.1	20	4503.4	1558.0	7081.2
30	3756.5	1121.7	6283.0	30	4516.9	1566.3	7094.2
40	3768.5	1128.2	6296.9	40	4530.4	1574.7	7107.3
50	3780.4	1134.8	6310.9	50	4544.0	1583.1	7120.4
67 0	3792.4	1141.4	6324.8	77 0	4557.6	1591.6	7133.5
10	3804.4	1148.0	6338.6	10	4571.2	1600.1	7146.5
20	3816.4	1154.7	6352.5	20	4584.8	1608.6	7159.5
30	3828.4	1161.3	6366.3	30	4598.5	1617.1	7172.5
40	3840.5	1168.1	6380.1	40	4612.2	1625.7	7185.5
50	3852.6	1174.8	6394.0	50	4626.0	1634.4	7198.5
68 0	3864.7	1181.6	6407.9	78 0	4639.8	1643.0	7211.5
10	3876.8	1188.4	6421.7	10	4653.6	1651.7	7224.4
20	3889.0	1195.2	6435.4	20	4667.4	1660.5	7237.3
30	3901.2	1202.0	6449.2	30	4681.3	1669.2	7250.2
40	3913.4	1208.9	6463.0	40	4695.2	1678.1	7263.2
50	3925.6	1215.8	6476.8	50	4709.2	1686.9	7276.1
69 0	3937.9	1222.7	6490.6	79 0	4723.2	1695.8	7289.0
10	3950.2	1229.7	6504.3	10	4737.2	1704.7	7301.8
20	3962.5	1236.7	6518.0	20	4751.2	1713.7	7314.6
30	3974.8	1243.7	6531.7	30	4765.3	1722.7	7327.4
40	3987.2	1250.8	6545.4	40	4779.4	1731.7	7340.2
50	3999.5	1257.9	6559.1	50	4793.6	1740.8	7353.0
70 0	4011.9	1265.0	6572.8	80 0	4807.7	1749.9	7365.8
10	4024.4	1272.1	6586.4	10	4822.0	1759.0	7378.5
20	4036.8	1279.3	6600.0	20	4836.2	1768.2	7391.2
30	4049.3	1286.5	6613.6	30	4850.5	1777.4	7404.0
40	4061.8	1293.6	6627.2	40	4864.8	1786.7	7416.8
50	4074.4	1300.9	6640.8	50	4879.2	1796.0	7429.5
71 0	4086.9	1308.2	6654.4	81 0	4893.6	1805.2	7442.2

TABLE 7. FUNCTIONS OF A ONE-DEGREE CURVE

Angle Δ	Tang. Dist.	Ext. Dist.	Long Chord	Angle Δ	Tang. Dist.	Ext. Dist.	Long Chord
81 0	4893.6	1805.3	7442.2	91 0	5830.5	2444.9	8173.3
10	4908.0	1814.7	7454.8	10	5847.5	2457.1	8184.9
20	4922.5	1824.1	7467.5	20	5864.6	2469.3	8196.6
30	4937.0	1833.6	7480.1	30	5881.7	2481.5	8208.2
40	4951.5	1843.1	7492.7	40	5898.8	2493.8	8219.8
50	4966.1	1852.6	7505.3	50	5916.0	2506.1	8231.4
82 0	4980.7	1862.2	7517.9	92 0	5933.2	2518.5	8243.0
10	4995.4	1871.8	7530.4	10	5950.5	2531.0	8254.6
20	5010.0	1881.5	7543.0	20	5967.9	2543.5	8266.1
30	5024.8	1891.2	7555.5	30	5985.3	2556.0	8277.7
40	5039.5	1900.9	7568.0	40	6002.7	2568.6	8289.2
50	5054.3	1910.7	7580.6	50	6020.2	2581.3	8300.7
83 0	5069.2	1920.5	7593.1	93 0	6037.8	2594.0	8312.2
10	5084.0	1930.4	7605.5	10	6055.4	2606.8	8323.7
20	5099.0	1940.3	7618.0	20	6073.1	2619.7	8335.1
30	5113.9	1950.3	7630.4	30	6090.8	2632.6	8346.5
40	5128.9	1960.2	7642.9	40	6108.6	2645.5	8357.9
50	5143.9	1970.3	7655.3	50	6126.4	2658.5	8369.3
84 0	5159.0	1980.4	7667.8	94 0	6144.3	2671.6	8380.7
10	5174.1	1990.5	7680.1	10	6162.2	2684.7	8392.1
20	5189.3	2000.6	7692.5	20	6180.2	2697.9	8403.4
30	5204.4	2010.8	7704.8	30	6198.3	2711.2	8414.7
40	5219.7	2021.1	7717.2	40	6216.4	2724.5	8426.0
50	5234.9	2031.4	7729.5	50	6234.6	2737.9	8437.3
85 0	5250.3	2041.7	7741.8	95 0	6252.8	2751.3	8448.6
10	5265.6	2052.1	7754.1	10	6271.1	2764.8	8459.8
20	5281.0	2062.5	7766.4	20	6289.4	2778.3	8471.1
30	5296.4	2073.0	7778.6	30	6307.9	2792.0	8482.3
40	5311.9	2083.5	7790.8	40	6326.3	2805.6	8493.5
50	5327.4	2094.1	7803.1	50	6344.8	2819.4	8504.6
86 0	5343.0	2104.7	7815.3	96 0	6363.4	2833.2	8515.8
10	5358.6	2115.3	7827.4	10	6382.1	2847.0	8527.0
20	5374.2	2126.0	7839.5	20	6400.8	2861.0	8538.1
30	5389.9	2136.7	7851.6	30	6419.5	2875.0	8549.2
40	5405.6	2147.5	7863.8	40	6438.4	2889.0	8560.3
50	5421.4	2158.4	7875.9	50	6457.3	2903.1	8571.4
87 0	5437.2	2169.2	7888.0	97 0	6476.2	2917.3	8582.4
10	5453.1	2180.2	7900.0	10	6495.2	2931.6	8593.5
20	5469.0	2191.1	7912.1	20	6514.3	2945.9	8604.5
30	5484.9	2202.2	7924.1	30	6533.4	2960.3	8615.5
40	5500.9	2213.2	7936.2	40	6552.6	2974.7	8626.5
50	5517.0	2224.3	7948.2	50	6571.9	2989.2	8637.4
88 0	5533.1	2235.5	7960.2	98 0	6591.2	3003.8	8648.4
10	5549.2	2246.7	7972.2	10	6610.6	3018.4	8659.3
20	5565.4	2258.0	7984.1	20	6630.1	3033.1	8670.2
30	5581.6	2269.3	7996.1	30	6649.6	3047.9	8681.1
40	5597.8	2280.6	8008.0	40	6669.2	3062.8	8692.0
50	5614.2	2292.0	8019.9	50	6688.8	3077.7	8702.9
89 0	5630.5	2303.5	8031.8	99 0	6708.6	3092.7	8713.7
10	5646.9	2315.0	8043.6	10	6728.4	3107.7	8724.5
20	5663.4	2326.6	8055.5	20	6748.2	3122.9	8735.3
30	5679.9	2338.2	8067.3	30	6768.1	3138.1	8746.0
40	5696.4	2349.8	8079.2	40	6788.1	3153.3	8756.8
50	5713.0	2361.5	8091.0	50	6808.2	3168.7	8767.5
90 0	5729.7	2373.3	8102.9	100 0	6828.3	3184.1	8778.2
10	5746.3	2385.1	8114.6	10	6848.5	3199.6	8789.0
20	5763.1	2397.0	8126.4	20	6868.8	3215.1	8799.7
30	5779.9	2408.9	8138.1	30	6889.2	3230.8	8810.3
40	5796.7	2420.9	8149.8	40	6909.6	3246.5	8821.0
50	5813.6	2432.9	8161.6	50	6930.1	3262.3	8831.6
91 0	5830.5	2444.9	8173.3	101 0	6950.6	3278.1	8842.2

TABLE 7. FUNCTIONS OF A ONE-DEGREE CURVE

Angle Δ	Tang. Dist.	Ext. Dist.	Long Chord	Angle Δ	Tang. Dist.	Ext. Dist.	Long Chord
101 0	6950.6	3278.1	8842.2	111 0	8336.7	4386.1	9443.8
10 10	6971.3	3294.1	8852.8	10 10	8362.7	4407.6	9453.2
20 20	6992.0	3310.1	8863.4	20 20	8388.9	4429.2	9462.6
30 30	7012.7	3326.1	8873.9	30 30	8415.1	4450.9	9472.0
40 40	7033.6	3342.3	8884.5	40 40	8441.5	4472.7	9481.4
50 50	7054.5	3358.5	8895.0	50 50	8468.0	4494.6	9490.8
102 0	7075.5	3374.9	8905.5	112 0	8494.6	4516.6	9500.1
10 10	7096.6	3391.2	8916.0	10 10	8521.3	4538.8	9509.4
20 20	7117.8	3407.7	8926.4	20 20	8548.1	4561.1	9518.7
30 30	7139.0	3424.3	8936.9	30 30	8575.0	4583.4	9527.9
40 40	7160.3	3440.9	8947.3	40 40	8602.1	4606.0	9537.2
50 50	7181.7	3457.6	8957.7	50 50	8629.3	4628.6	9546.4
103 0	7203.2	3474.4	8968.1	113 0	8656.6	4651.3	9555.6
10 10	7224.7	3491.3	8978.4	10 10	8684.0	4674.2	9564.8
20 20	7246.3	3508.2	8988.7	20 20	8711.5	4697.2	9574.0
30 30	7268.0	3525.2	8999.0	30 30	8739.2	4720.3	9583.1
40 40	7289.8	3542.4	9009.3	40 40	8767.0	4743.6	9592.3
50 50	7311.7	3559.6	9019.6	50 50	8794.9	4766.9	9601.4
104 0	7333.6	3576.8	9029.9	114 0	8822.9	4790.4	9610.5
10 10	7355.6	3594.2	9040.2	10 10	8851.0	4814.1	9619.6
20 20	7377.8	3611.7	9050.4	20 20	8879.3	4837.8	9628.6
30 30	7399.9	3629.2	9060.6	30 30	8907.7	4861.7	9637.6
40 40	7422.2	3646.8	9070.8	40 40	8936.3	4885.7	9646.6
50 50	7444.6	3664.5	9081.0	50 50	8965.0	4909.9	9655.6
105 0	7467.0	3682.3	9091.1	115 0	8993.8	4934.1	9664.6
10 10	7489.6	3700.2	9101.3	10 10	9022.7	4958.6	9673.5
20 20	7512.2	3718.2	9111.4	20 20	9051.7	4983.1	9682.4
30 30	7534.9	3736.2	9121.5	30 30	9080.9	5007.8	9691.3
40 40	7557.7	3754.4	9131.6	40 40	9110.3	5032.6	9700.2
50 50	7580.5	3772.6	9141.6	50 50	9139.8	5057.6	9709.1
106 0	7603.5	3791.0	9151.7	116 0	9169.4	5082.7	9717.9
10 10	7626.6	3809.4	9161.7	10 10	9199.1	5107.9	9726.7
20 20	7649.7	3827.9	9171.7	20 20	9229.0	5133.3	9735.5
30 30	7672.9	3846.5	9181.7	30 30	9259.0	5158.8	9744.3
40 40	7696.3	3865.2	9191.7	40 40	9289.2	5184.5	9753.1
50 50	7719.7	3884.0	9201.6	50 50	9319.5	5210.3	9761.8
107 0	7743.2	3902.9	9211.5	117 0	9349.9	5236.2	9770.5
10 10	7766.8	3921.9	9221.4	10 10	9380.5	5262.3	9779.2
20 20	7790.5	3940.9	9231.3	20 20	9411.3	5288.6	9787.9
30 30	7814.3	3960.1	9241.2	30 30	9442.2	5315.0	9796.6
40 40	7838.1	3979.4	9251.0	40 40	9473.2	5341.5	9805.2
50 50	7862.1	3998.7	9260.8	50 50	9504.4	5368.2	9813.8
108 0	7886.2	4018.2	9270.6	118 0	9535.7	5395.1	9822.4
10 10	7910.4	4037.8	9280.4	10 10	9567.2	5422.1	9831.0
20 20	7934.6	4057.4	9290.2	20 20	9598.9	5449.2	9839.6
30 30	7959.0	4077.2	9300.0	30 30	9630.7	5476.5	9848.1
40 40	7983.5	4097.1	9309.7	40 40	9662.6	5504.0	9856.6
50 50	8008.0	4117.0	9319.4	50 50	9694.7	5531.7	9865.1
109 0	8032.7	4137.1	9329.1	119 0	9727.0	5559.4	9873.5
10 10	8057.4	4157.3	9338.7	10 10	9759.4	5587.4	9882.0
20 20	8082.3	4177.5	9348.5	20 20	9792.0	5615.5	9890.4
30 30	8107.3	4197.9	9358.0	30 30	9824.8	5643.8	9898.8
40 40	8132.3	4218.4	9367.6	40 40	9857.7	5672.3	9907.2
50 50	8157.5	4239.0	9377.2	50 50	9890.8	5700.9	9915.6
110 0	8182.8	4259.7	9386.8	120 0	9924.0	5729.7	9923.9
10 10	8208.2	4280.5	9396.4	10 10	9957.5	5758.6	9932.2
20 20	8233.7	4301.4	9405.9	20 20	9991.0	5787.7	9940.5
30 30	8259.3	4322.4	9415.4	30 30	10025.0	5817.0	9948.8
40 40	8285.0	4343.6	9424.9	40 40	10059.0	5846.5	9957.1
50 50	8310.8	4364.8	9434.4	50 50	10093.0	5876.1	9965.3
111 0	8336.7	4386.1	9443.8	121 0	10127.0	5906.0	9973.5

TABLE 8. CORRECTIONS FOR TANGENT DISTANCES

After Dividing Tang. Dist. (Table 7) by Degree of Curve, Add Quantity Tabulated Below

Ang. Δ	Degree of Curve							
	2°	3°	4°	5°	6°	7°	8°	9°
1°	.00	.00	.00	.00	.00	.00	.01	.01
2	.00	.00	.00	.01	.01	.01	.01	.01
3	.00	.01	.01	.01	.01	.01	.02	.02
4	.00	.01	.01	.01	.01	.02	.02	.02
5	.00	.01	.01	.02	.02	.02	.03	.03
6	.01	.01	.01	.02	.02	.03	.03	.03
7	.01	.01	.02	.02	.03	.03	.04	.04
8	.01	.01	.02	.02	.03	.03	.04	.05
9	.01	.02	.02	.03	.03	.04	.05	.05
	Degree of Curve							
	5°	10°	15°	20°	25°	30°		
10°	.03	.06	.09	.13	.16	.19		
20	.06	.13	.19	.26	.32	.39		
30	.10	.19	.29	.39	.49	.59		
40	.13	.26	.40	.53	.67	.80		
50	.17	.34	.51	.68	.85	1.02		
60	.21	.42	.63	.84	1.05	1.27		
70	.25	.51	.76	1.02	1.28	1.54		
80	.30	.61	.91	1.22	1.53	1.84		
90	.36	.72	1.09	1.45	1.83	2.20		
100	.43	.86	1.30	1.74	2.18	2.62		
110	.51	1.03	1.56	2.08	2.61	3.14		
120	.62	1.25	1.93	2.52	3.16	3.81		

TABLE 9. CORRECTIONS FOR EXTERNAL DISTANCES

After Dividing Ext. Dist. (Table 7) by Degree of Curve, Add Quantity Tabulated Below

Ang. Δ	Degree of Curve					
	5°	10°	15°	20°	25°	30°
10°	.001	.003	.004	.006	.007	.008
20	.006	.011	.017	.022	.028	.034
30	.013	.025	.038	.051	.065	.078
40	.023	.046	.070	.093	.117	.141
50	.037	.075	.116	.151	.189	.227
60	.056	.112	.168	.225	.283	.340
70	.080	.159	.240	.321	.403	.485
80	.110	.220	.332	.445	.558	.671
90	.149	.299	.450	.603	.756	.910
100	.200	.401	.604	.809	1.015	1.221
110	.268	.536	.806	1.082	1.355	1.633
120	.360	.721	1.086	1.456	1.825	2.197

TABLE 10. TRIGONOMETRIC FUNCTIONS, FORMULAS AND SOLUTION OF TRIANGLES

TRIGONOMETRIC FUNCTIONS

There are three common methods of defining the trigonometric functions.

1. By certain ratios.
2. By reference to the sides of a right triangle.
3. By use of a circle whose radius is unity or 1.

1. By ratios.

In the figure, the ratio $\frac{a}{c}$ is called the sine of A and written $\sin A$

$\frac{b}{c}$ is called the cosine of A and written $\cos A$

$\frac{a}{b}$ is called the tangent of A and written $\tan A$

$\frac{b}{a}$ is called the cotangent of A and written $\cot A$

$\frac{c}{b}$ is called the secant of A and written $\sec A$

$\frac{c}{a}$ is called the cosecant of A and written $\csc A$

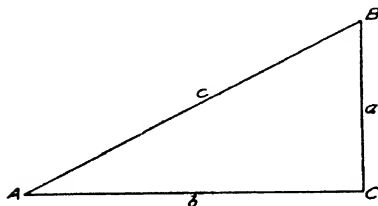
To these may be added, versine $A = 1 - \cosine A = \frac{c - b}{c}$ and written versin A

exsecant $A = \secant A - 1 = \frac{c - b}{b}$ and written exsec A

coversine $A = 1 - \sin A = \frac{c - a}{c}$ and written covers A

and

coexsecant $A = \cscant A - 1 = \frac{c - a}{a}$ and written coexsec A



2. By reference to the sides of a right triangle.

$$\sin A = \frac{a}{c} = \frac{\text{opposite side}}{\text{hypotenuse}} = \cos B$$

$$\cos A = \frac{b}{c} = \frac{\text{adjacent side}}{\text{hypotenuse}} = \sin B$$

$$\tan A = \frac{a}{b} = \frac{\text{opposite side}}{\text{adjacent side}} = \cot B$$

$$\cot A = \frac{b}{a} = \frac{\text{adjacent side}}{\text{opposite side}} = \tan B$$

$$\sec A = \frac{c}{b} = \frac{\text{hypotenuse}}{\text{adjacent side}} = \csc B$$

$$\csc A = \frac{c}{a} = \frac{\text{hypotenuse}}{\text{opposite side}} = \sec B$$

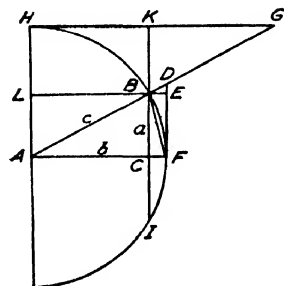
TABLE 10. TRIGONOMETRIC FUNCTIONS, FORMULAS AND SOLUTION OF TRIANGLES

3. By use of a circle whose radius is unity or 1.

In the figure, let $A = \text{angle } BAC = \text{arc } BF$, and let the radius $AF = AB = AH = 1$.

We then have,

$$\begin{aligned}\sin A &= BC \\ \cos A &= AC \\ \tan A &= DF \\ \cot A &= HG \\ \sec A &= AD \\ \operatorname{cosec} A &= AG \\ \operatorname{versin} A &= CF \\ \operatorname{covers} A &= HL \\ \operatorname{exsec} A &= BD \\ \operatorname{coexsec} A &= BG \\ \text{chord } A &= BF \\ \text{chord } 2A &= BI = 2BC\end{aligned}$$



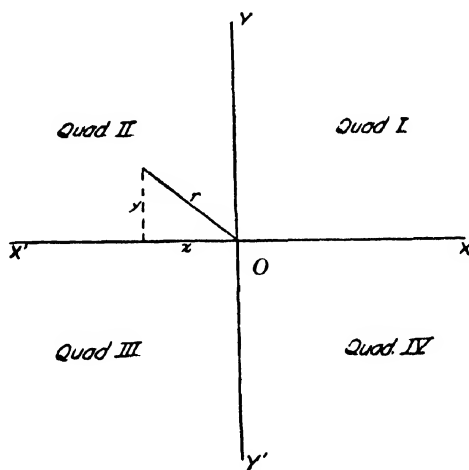
SOLUTION OF RIGHT TRIANGLES

Given	Sought	Formulas
a and b	A, B and c	$\tan A = \frac{a}{b} = \cot B$ $c = \sqrt{a^2 + b^2}$
a and c	A, B and b	$\sin A = \frac{a}{c} = \cos B$ $b = \sqrt{c^2 - a^2} = \sqrt{(c + a)(c - a)}$
b and c	A, B and a	$\cos A = \frac{b}{c} = \sin B$ $a = \sqrt{c^2 - b^2} = \sqrt{(c + b)(c - b)}$
A and a	B, b and c	$B = 90^\circ - A$ $b = a \cot A; \quad c = \frac{a}{\sin A}$
A and b	B, a and c	$B = 90^\circ - A$ $a = b \tan A; \quad c = \frac{b}{\cos A}$
A and c	B, a and b	$B = 90^\circ - A$ $a = c \sin A; \quad b = c \cos A$
B and a	A, b and c	$A = 90^\circ - B$ $b = a \tan B; \quad c = \frac{a}{\cos B}$
B and b	A, a and c	$A = 90^\circ - B$ $a = b \cot B; \quad c = \frac{b}{\sin B}$
B and c	A, a and b	$A = 90^\circ - B$ $a = c \cos B; \quad b = c \sin B$

TABLE 10. TRIGONOMETRIC FUNCTIONS, FORMULAS AND SOLUTION OF TRIANGLES

SIGNS OF FUNCTIONS IN THE DIFFERENT QUADRANTS

In the solution of oblique triangles, and in the discussion of trigonometric equations, the question of proper sign of the particular function will arise. The following discussion and table is pertinent.



The figure shows the division of the circle into quadrants together with the customary designation I, II, III and IV, the first, second, third and fourth quadrants. The following will be of assistance in determining the signs of the functions in the different quadrants:

When x is measured in the direction OX it is positive (+), and when in the direction OX' it is negative (-); similarly, when y is measured in the direction OY it is positive (+), and when in the direction OY' it is negative (-).

For instance, consider the sin of an angle in the second quadrant (II).

The *general* equation is $\sin A = \frac{y}{r}$. Here y is + and therefore $\sin A$ is +;

$\cos A = \frac{x}{r}$. Here x is - and $\cos A$ is -. Similarly for the other functions in various quadrants.

From the above, the table given below has been compiled.

SIGNS OF THE FUNCTIONS IN THE FOUR QUADRANTS

Quadrant	sin	cos	tan	cot	sec	cosec
I = First	+	+	+	+	+	+
II = Second	+	-	-	-	-	+
III = Third	-	-	+	+	-	-
IV = Fourth	-	+	-	-	+	-

TABLE 10. TRIGONOMETRIC FUNCTIONS, FORMULAS AND SOLUTION OF TRIANGLES

TRIGONOMETRIC LAWS

In the solution of triangles there are three laws on which the different solutions are based. While these will apply to both the right and oblique triangles, they are usually used for the latter only.

Law of sines. In any triangle the sides are to each other as the sines of their opposite angles. Expressed in the form of equations we have

$$\frac{a}{b} = \frac{\sin A}{\sin B}; \quad \frac{b}{c} = \frac{\sin B}{\sin C}; \quad \frac{a}{c} = \frac{\sin A}{\sin C}$$

Law of cosines. In any triangle, the square of any side is equal to the sum of the squares of the other two sides minus twice their product times the cosine of the included angle.

$$a^2 = b^2 + c^2 - 2bc \cos A$$

$$b^2 = a^2 + c^2 - 2ac \cos B$$

$$c^2 = a^2 + b^2 - 2ab \cos C$$

When the included angle is obtuse, the cosine is negative, and should be used accordingly in evaluating.

Law of tangents. The difference between two sides of a triangle is to their sum as the tangent of $\frac{1}{2}$ the difference between the opposite angles is to the tangent of $\frac{1}{2}$ the sum of the opposite angles.

$$\frac{a-b}{a+b} = \frac{\tan \frac{1}{2}(A-B)}{\tan \frac{1}{2}(A+B)}$$

$$\frac{a-c}{a+c} = \frac{\tan \frac{1}{2}(A-C)}{\tan \frac{1}{2}(A+C)}$$

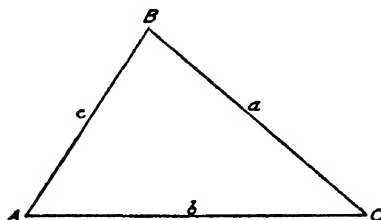
$$\frac{b-c}{b+c} = \frac{\tan \frac{1}{2}(B-C)}{\tan \frac{1}{2}(B+C)}$$

In the first of these equations a is greater than b , and when not the members of the equation should be changed to $b - a$, and so on.

Checking results. The following fundamental properties of triangles will help in checking results:

1. In a **right triangle**, the sum of the two acute angles = 90° , and either acute angle is the complement of the other.
2. In a **right triangle**, the square of the hypotenuse is equal to the sum of the squares of the other two sides.
3. The sum of the interior angles of **any triangle** = 180° .
4. In **any triangle**, the larger angle is opposite the larger side and conversely.
5. In **any triangle**, the sum of two sides is greater than the third.

TABLE 10. TRIGONOMETRIC FUNCTIONS, FORMULAS AND SOLUTION OF TRIANGLES



SOLUTION OF OBLIQUE TRIANGLES BY USE OF FORMULAS

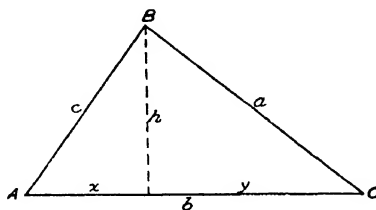
Let A , B and C be the angles of the triangle and a , b and c the sides opposite these angles.

Given	Sought	Formulas
Case I A, B, a , one side and any two angles	C, b, c , the remaining parts	$C = 180^\circ - (A + B), \quad b = \frac{a}{\sin A} \cdot \sin B,$ $c = \frac{a}{\sin A} \sin (A + B) = \frac{a}{\sin A} \sin C$ <p>Then, having found C and a,</p>
	Area	$\text{Area} = K = \frac{1}{2} ab \sin C = \frac{a^2 \sin B \sin C}{2 \sin A}$
Case II A, a, b , two sides and the angle opposite one of them	B, C, c ,	$\sin B = \frac{\sin A}{a} \cdot b, \quad C = 180^\circ - (A + B),$ $c = \frac{a}{\sin A} \cdot \sin C = \frac{b}{\sin B} \sin C$ <p>REMARK There may be two solutions. In order that there may be such, the given angle must be acute, and the side opposite it must be less than the given side adjacent to it.</p>
	Area	$\text{Area} = K = \frac{1}{2} ab \sin C$
Case III C, a, b , two sides and the included angle	c , the other side, and B and A , the other angles	<p style="text-align: center;">First Solution</p> $c = \sqrt{a^2 + b^2 - 2ab \cos C}$ <p>Then use the sine formula for angles A and B</p> $\sin A = \frac{a}{c} \sin C, \text{ and } B = 180^\circ - (A + C)$ <p>or $\sin B = \frac{b}{c} \sin C$, and check $(A + B + C) = 180^\circ$</p> $\text{Again, } \cos B = \frac{a^2 + c^2 - b^2}{2ac}$ <p>and $\cos A = \frac{b^2 + c^2 - a^2}{2bc}$</p> <p style="text-align: center;">Second Solution</p> $\frac{1}{2} (A + B) = 90^\circ - \frac{1}{2} C$ $\tan \frac{1}{2} (A - B) = \frac{a - b}{a + b} \tan \frac{1}{2} (A + B)$ $A = \frac{1}{2} (A + B) + \frac{1}{2} (A - B),$ $B = \frac{1}{2} (A + B) - \frac{1}{2} (A - B)$ $c = (a + b) \frac{\cos \frac{1}{2} (A - B)}{\cos \frac{1}{2} (A + B)} = (a - b) \frac{\sin \frac{1}{2} (A + B)}{\sin \frac{1}{2} (A - B)}$
	Area	$\text{Area} = K = \frac{1}{2} ab \sin C$

TABLE 10. TRIGONOMETRIC FUNCTIONS, FORMULAS AND SOLUTION OF TRIANGLES

Given	Sought	Formulas
Case IV $a, b, c,$ the three sides	$A,$ one angle, or, $A, B, C,$ all the angles	<p>Let $s = \frac{1}{2} (a + b + c)$</p> <p>Then $\sin \frac{1}{2} A = \sqrt{\frac{(s-b)(s-c)}{bc}}$</p> <p>$\cos \frac{1}{2} A = \sqrt{\frac{s(s-a)}{bc}}$</p> <p>$\tan \frac{1}{2} A = \sqrt{\frac{(s-b)(s-c)}{s(s-a)}}$</p> <p>$\sin A = \frac{2 \sqrt{s(s-a)(s-b)(s-c)}}{bc}$</p> <p>$\text{vers } A = \frac{2(s-b)(s-c)}{bc}$</p> <p>$B$ and C may then be found from the sin formula</p> <p>or, $\tan \frac{1}{2} B = \sqrt{\frac{(s-a)(s-c)}{s(s-b)}}$</p> <p>and $\tan \frac{1}{2} C = \sqrt{\frac{(s-a)(s-b)}{s(s-c)}}$</p> <p>Finally check by $(A + B + C) = 180^\circ$</p>
	Area	$\text{Area} = K = \sqrt{s(s-a)(s-b)(s-c)}$

TABLE 10. TRIGONOMETRIC FUNCTIONS, FORMULAS AND SOLUTION OF TRIANGLES



TRIGONOMETRIC FORMULAS

SOLUTION OF OBLIQUE TRIANGLES BY RESOLVING INTO RIGHT TRIANGLES

Given	Sought	Formulas
Case I A, B, a , one side and <i>any</i> two angles	C, b, c	$C = 180^\circ - (A + B)$ Then use sine formulas. In this case there is no advantage in a right triangle solution.
Case II A, a, b , two sides and the angle op- posite one of them	B, C, c	Here, also, use sine formulas. When A, a , and c are given, the right triangle method may be used if preferred.
A, a, c	B, C, b	From the figure, $x = c \cos A$ $h = c \sin A$ $\sin C = \frac{h}{a}$ and $y = h \cot C$ Then $b = x + y$ Finally, $B = 180^\circ - (A + C)$ or check on B from the sin formula $\sin B = \frac{b}{a} \sin A$
Case III C, a, b , two sides and the included angle	B, A, c	From the figure, $y = a \cos C$; $h = a \sin C$ $x = b - y = b - a \cos C$ $\tan A = \frac{h}{x} = \frac{a \sin C}{b - a \cos C}$ Then $c = \frac{h}{\sin A} = \frac{x \tan A}{\sin A} = x \sec A = \frac{a \sin C}{\sin A}$ Finally, $B = 180^\circ - (A + C)$
Case IV a, b, c , the three sides	A, B, C	$h^2 = c^2 - x^2 = a^2 - y^2$ $c^2 - a^2 = x^2 - y^2$ $(c - a)(c + a) = (x - y)(x + y)$ $(x - y) = \frac{(c - a)(c + a)}{x + y} = \frac{(c - a)}{b} (c + a)$ Now $x + y = b$ Solving these two equations simultaneously $x = \frac{1}{2} \left[\frac{(c - a)(c + a)}{b} + b \right] = \frac{1}{2} \left(\frac{c^2 - a^2 + b^2}{b} \right)$ And $y = b - x$ Finally, solve the right triangles on each side of the perpendicular, and $\cos A = \frac{x}{c}$ $\cos C = \frac{y}{a} = \frac{b - x}{a}$ and $B = 180^\circ - (A + C)$

TABLE 10. TRIGONOMETRIC FUNCTIONS, FORMULAS AND SOLUTION OF TRIANGLES

FUNCTIONS OF AN ANGLE IN TERMS OF OTHER FUNCTIONS OF SAME ANGLE

Function	$\sin A$	$\cos A$	$\tan A$	$\cot A$
$\sin A$	$\sin A$	$\sqrt{1 - \cos^2 A}$	$\frac{\tan A}{\sqrt{1 + \tan^2 A}}$	$\frac{1}{\sqrt{1 + \cot^2 A}}$
$\cos A$	$\sqrt{1 - \sin^2 A}$	$\cos A$	$\frac{1}{\sqrt{1 + \tan^2 A}}$	$\frac{\cot A}{\sqrt{1 + \cot^2 A}}$
$\tan A$	$\frac{\sin A}{\sqrt{1 - \sin^2 A}}$	$\frac{\sqrt{1 - \cos^2 A}}{\cos A}$	$\tan A$	$\frac{1}{\cot A}$
$\cot A$	$\frac{\sqrt{1 - \sin^2 A}}{\sin A}$	$\frac{\cos A}{\sqrt{1 - \cos^2 A}}$	$\frac{1}{\tan A}$	$\cot A$
$\sec A$	$\frac{1}{\sqrt{1 - \sin^2 A}}$	$\frac{1}{\cos A}$	$\sqrt{1 + \tan^2 A}$	$\frac{\sqrt{1 + \cot^2 A}}{\cot A}$
$\operatorname{cosec} A$	$\frac{1}{\sin A}$	$\frac{1}{\sqrt{1 - \cos^2 A}}$	$\frac{\sqrt{1 + \tan^2 A}}{\tan A}$	$\sqrt{1 + \cot^2 A}$

Function	$\sec A$	$\operatorname{cosec} A$	$90^\circ - A$
$\sin A$	$\frac{\sqrt{\sec^2 A - 1}}{\sec A}$	$\frac{1}{\operatorname{cosec} A}$	$\cos (90^\circ - A)$
$\cos A$	$\frac{1}{\sec A}$	$\frac{\sqrt{\operatorname{cosec}^2 A - 1}}{\operatorname{cosec} A}$	$\sin (90^\circ - A)$
$\tan A$	$\sqrt{\sec^2 A - 1}$	$\frac{1}{\sqrt{\operatorname{cosec}^2 A - 1}}$	$\cot (90^\circ - A)$
$\cot A$	$\frac{1}{\sqrt{\sec^2 A - 1}}$	$\sqrt{\operatorname{cosec}^2 A - 1}$	$\tan (90^\circ - A)$
$\sec A$	$\sec A$	$\frac{\operatorname{cosec} A}{\sqrt{\operatorname{cosec}^2 A - 1}}$	$\operatorname{cosec} (90^\circ - A)$
$\operatorname{cosec} A$	$\frac{\sec A}{\sqrt{\sec^2 A - 1}}$	$\operatorname{cosec} A$	$\sec (90^\circ - A)$

TABLE 10. TRIGONOMETRIC FUNCTIONS, FORMULAS AND SOLUTION OF TRIANGLES

FUNCTIONS OF ANGLES IN ANY QUADRANT IN TERMS OF ANGLES IN THE FIRST QUADRANT

Angle Function	$90^\circ \pm A$	$180^\circ \pm A$	$270^\circ \pm A$	$360^\circ \pm A$
sin	$+\cos A$	$\mp \sin A$	$-\cos A$	$\pm \sin A$
cos	$\mp \sin A$	$-\cos A$	$\pm \sin A$	$+\cos A$
tan	$\mp \cot A$	$\pm \tan A$	$\mp \cot A$	$\pm \tan A$
cot	$\mp \tan A$	$\pm \cot A$	$\mp \tan A$	$\pm \cot A$
sec	$\mp \operatorname{cosec} A$	$-\sec A$	$\pm \operatorname{cosec} A$	$+\sec A$
cosec	$+\sec A$	$\mp \operatorname{cosec} A$	$-\sec A$	$\pm \operatorname{cosec} A$

NUMERICAL VALUES OF THE FUNCTIONS OF SOME ANGLES

Angle Function	0°	30°	45°	60°	90°	120°	135°	150°	180°	270°	360°
sine	0	$\frac{1}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{1}{2}\sqrt{3}$	1	$\frac{1}{2}\sqrt{3}$	$\frac{1}{\sqrt{2}}$	$\frac{1}{2}$	0	-1	0
cosine	1	$\frac{1}{2}\sqrt{3}$	$\frac{1}{\sqrt{2}}$	$\frac{1}{2}$	0	$-\frac{1}{2}$	$-\frac{1}{\sqrt{2}}$	$-\frac{\sqrt{3}}{2}$	-1	0	1
tangent	0	$\frac{1}{\sqrt{3}}$	1	$\sqrt{3}$	∞	$-\sqrt{3}$	-1	$-\frac{1}{\sqrt{3}}$	0	∞	0
cotangent	∞	$\sqrt{3}$	1	$\frac{1}{\sqrt{3}}$	0	$-\frac{1}{\sqrt{3}}$	-1	$-\sqrt{3}$	∞	0	∞
secant	1	$\frac{2}{\sqrt{3}}$	$\sqrt{2}$	2	∞	-2	$-\sqrt{2}$	$-\frac{2}{\sqrt{3}}$	-1	∞	1
cosecant	∞	2	$\sqrt{2}$	$\frac{2}{\sqrt{3}}$	1	$\frac{2}{\sqrt{3}}$	$\sqrt{2}$	2	∞	-1	∞

TABLE 11. MINUTES IN DECIMALS OF A DEGREE

'	0"	10"	15"	20"	30"	40"	45"	50"	'
0	.00000	.00278	.00417	.00556	.00833	.01111	.01250	.01389	0
1	.01667	.01944	.02083	.02222	.02500	.02778	.02917	.03056	1
2	.03333	.03611	.03750	.03889	.04167	.04444	.04583	.04722	2
3	.05000	.05278	.05417	.05556	.05833	.06111	.06250	.06389	3
4	.06667	.06944	.07083	.07222	.07500	.07778	.07917	.08056	4
5	.08333	.08611	.08750	.08889	.09167	.09444	.09583	.09722	5
6	.10000	.10278	.10417	.10556	.10833	.11111	.11250	.11389	6
7	.11667	.11944	.12083	.12222	.12500	.12778	.12917	.13056	7
8	.13333	.13611	.13750	.13889	.14167	.14444	.14583	.14722	8
9	.15000	.15278	.15417	.15556	.15833	.16111	.16250	.16389	9
10	.16667	.16944	.17083	.17222	.17500	.17778	.17917	.18056	10
11	.18333	.18611	.18750	.18889	.19167	.19444	.19583	.19722	11
12	.20000	.20278	.20417	.20556	.20833	.21111	.21250	.21389	12
13	.21667	.21944	.22083	.22222	.22500	.22778	.22917	.23056	13
14	.23333	.23611	.23750	.23889	.24167	.24444	.24583	.24722	14
15	.25000	.25278	.25417	.25556	.25833	.26111	.26250	.26389	15
16	.26667	.26944	.27083	.27222	.27500	.27778	.27917	.28056	16
17	.28333	.28611	.28750	.28889	.29167	.29444	.29583	.29722	17
18	.30000	.30278	.30417	.30556	.30833	.31111	.31250	.31389	18
19	.31667	.31944	.32083	.32222	.32500	.32778	.32917	.33056	19
20	.33333	.33611	.33750	.33889	.34167	.34444	.34583	.34722	20
21	.35000	.35278	.35417	.35556	.35833	.36111	.36250	.36389	21
22	.36667	.36944	.37083	.37222	.37500	.37778	.37917	.38056	22
23	.38333	.38611	.38750	.38889	.39167	.39444	.39583	.39722	23
24	.40000	.40278	.40417	.40556	.40833	.41111	.41250	.41389	24
25	.41667	.41944	.42083	.42222	.42500	.42778	.42917	.43056	25
26	.43333	.43611	.43750	.43889	.44167	.44444	.44583	.44722	26
27	.45000	.45278	.45417	.45556	.45833	.46111	.46250	.46389	27
28	.46667	.46944	.47083	.47222	.47500	.47778	.47917	.48056	28
29	.48333	.48611	.48750	.48889	.49167	.49444	.49583	.49722	29
30	.50000	.50278	.50417	.50556	.50833	.51111	.51250	.51389	30
31	.51667	.51944	.52083	.52222	.52500	.52778	.52917	.53056	31
32	.53333	.53611	.53750	.53889	.54167	.54444	.54583	.54722	32
33	.55000	.55278	.55417	.55556	.55833	.56111	.56250	.56389	33
34	.56667	.56944	.57083	.57222	.57500	.57778	.57917	.58056	34
35	.58333	.58611	.58750	.58889	.59167	.59444	.59583	.59722	35
36	.60000	.60278	.60417	.60556	.60833	.61111	.61250	.61389	36
37	.61667	.61944	.62083	.62222	.62500	.62778	.62917	.63056	37
38	.63333	.63611	.63750	.63889	.64167	.64444	.64583	.64722	38
39	.65000	.65278	.65417	.65556	.65833	.66111	.66250	.66389	39
40	.66667	.66944	.67083	.67222	.67500	.67778	.67917	.68056	40
41	.68333	.68611	.68750	.68889	.69167	.69444	.69583	.69722	41
42	.70000	.70278	.70417	.70556	.70833	.71111	.71250	.71389	42
43	.71667	.71944	.72083	.72222	.72500	.72778	.72917	.73056	43
44	.73333	.73611	.73750	.73889	.74167	.74444	.74583	.74722	44
45	.75000	.75278	.75417	.75556	.75833	.76111	.76250	.76389	45
46	.76667	.76944	.77083	.77222	.77500	.77778	.77917	.78056	46
47	.78333	.78611	.78750	.78889	.79167	.79444	.79583	.79722	47
48	.80000	.80278	.80417	.80556	.80833	.81111	.81250	.81389	48
49	.81667	.81944	.82083	.82222	.82500	.82778	.82917	.83056	49
50	.83333	.83611	.83750	.83889	.84167	.84444	.84583	.84722	50
51	.85000	.85278	.85417	.85556	.85833	.86111	.86250	.86389	51
52	.86667	.86944	.87083	.87222	.87500	.87778	.87917	.88056	52
53	.88333	.88611	.88750	.88889	.89167	.89444	.89583	.89722	53
54	.90000	.90278	.90417	.90556	.90833	.91111	.91250	.91389	54
55	.91667	.91944	.92083	.92222	.92500	.92778	.92917	.93056	55
56	.93333	.93611	.93750	.93889	.94167	.94444	.94583	.94722	56
57	.95000	.95278	.95417	.95556	.95833	.96111	.96250	.96389	57
58	.96667	.96944	.97083	.97222	.97500	.97778	.97917	.98056	58
59	.98333	.98611	.98750	.98889	.99167	.99444	.99583	.99722	59
'	0"	10"	15"	20"	30"	40"	45"	50"	'

Length*United States and British Standards.*

1 inch = 0.083333 foot = 0.027778 yard
 1 foot = 12 inches = 0.333333 yard
 1 yard = 36 inches = 3 feet
 1 rod = 16 5 feet
 1 Gunter's chain = 66 feet = 4 rods = 0.012500 mile
 1 engineer's chain = 100 feet = 0.018939 mile
 1 mile = 5280 feet = 1760 yards = 320 rods = 80 Gunter's chains

Metric Table of Linear Measure.

10 millimeters (mm) = 1 centimeter (cm)
 10 centimeters (cm) = 1 decimeter (dm)
 10 decimeters (dm) = 1 meter (m)
 10 meters (m) = 1 dekameter (Dm)
 10 dekameters (Dm) = 1 hektometer (Hm)
 10 hektometers (Hm) = 1 kilometer (Km)
 10 kilometers (Km) = 1 myriameter (Mm)

Table of Equivalents for Length.

1 inch = 0.02540005 m
 1 foot = 0.304801 m
 1 yard = 0.914402 m
 1 Gunter's chain = 20.11684 m
 1 engineer's chain = 30.480061 m
 1 mile = 1.609347 kilometers
 1 millimeter = 0.03937 inch
 1 centimeter = 0.3937 inch
 1 decimeter = 3.937 inches
 1 meter = 39.37 inches
 1 hektometer = 0.0621370 mile
 1 kilometer = 0.621370 mile

Square Measure*United States and British Standards.*

144 sq. inches = 1 sq. foot
 9 sq. feet = 1 sq. yard
 10 square chains (Gunter's) = 1 acre
 640 acres = 1 square mile
 43560 sq. ft. = 1 acre.

Metric Table of Square Measure.

100 sq. millimeters = 1 sq. centimeter
 100 sq. centimeters = 1 sq. decimeter
 100 sq. decimeters = 1 sq. meter
 100 sq. meters = 1 sq. dekameter
 100 sq. dekameters = 1 sq. hektometer
 100 sq. hektometers = 1 sq. kilometer
 100 sq. kilometers = 1 sq. myriameter

Table of Equivalents for Square Measure.

1 sq. inch = 6.451626 sq. centimeters
 1 sq. foot = 9.290034 sq. decimeters
 1 sq. yard = 0.836131 sq. meters
 1 acre = 0.404687 hectares
 1 sq. centimeter = 0.15499969 sq. inches
 1 sq. meter = 10.763867 sq. feet
 1 sq. meter = 1.195985 sq. yards
 1 hectare = 2.4710439 acres

DEFINITIONS AND THEORY

For ease of access certain definitions and fundamental theory will be given.

Definitions

Trigonometric functions. The explanation of the trigonometrical functions will be found in Table 10.

The *latitude* of a course is the projection of the course on the meridian, or it is equal to the length of the course times the cosine of the bearing. North latitudes are *plus* and south latitudes are *minus*.

The *departure* of a course is the projection of the course on an east and west line, or it is the length of the course times the sine of its bearing. East departures are *plus* and west departures are *minus*.

The *meridian distance* of a course is the perpendicular distance from the middle point of the course to the reference meridian.

The *double meridian distance* of a course is equal to the sum of the meridian distances to the extremities of the course.

The *azimuth* of a course is the horizontal angle which it makes with a north and south line. In surveying, the *south* point is taken as *zero*, the azimuth being measured to the right through west, north, and east to 360°. The reference line may be the magnetic meridian, or the true meridian. A course has a forward and a backward azimuth which differ by 180° from each other. The use of azimuth is quite general in topographic surveying. The reader is referred to treatises on surveying for a complete explanation as to details.

Determination of area by the use of latitudes, departures and double meridian distances. Coordinate surveying is largely based on the employment of the quantities latitudes, departures, and double meridian distances.

A traverse consists of a series of consecutive lines whose lengths and directions have been determined. The directions of the lines may be obtained from bearings, azimuths, deflection angles, or interior angles.

The method of finding areas of figures with straight lines as boundaries will be given and also the fundamentals of circular curves.

Computations preparatory to finding the area. A survey "closes" if, upon plotting the different courses, the first and last points which are common coincide. If reliance is placed on a graphic construction, it is difficult to tell whether failure to close is due to errors in the field or to errors in plotting. For this reason, the latitudes and departures of the courses are usually found, and provided a proper set of computing tables is used, and no mistakes are made, the amount by which the figure fails to close will be the error of the field work.

The difference between the *total plus* and *total minus* latitudes will give the error in latitude, and the difference between the *total plus* and the *total minus* departures will give the error in departure. The square root of the sum of the squares of these errors will give the amount by which the survey fails to close. This distance divided by the perimeter of the figure will give what is termed the "error of closure." If the error of closure be within certain prescribed limits the errors in latitude and departure may be distributed so as to make the survey close, but if not, after checking the computations, a part of the survey or all of it must be repeated. A careful investigation will often place the probable error in a certain region.

Balancing the survey. The operation of distributing the errors in latitude and departure of the closed survey is called *balancing*. Various methods have been proposed for such work depending upon whether the survey was made by transit

or compass. Since this book deals with tables intended for use with transit work the transit rule for balancing will be described.

A specimen form is given which may be modified to suit conditions. The balanced quantities may be inserted at proper places in red with pencil or ink.

Rule for balancing a transit survey. The correction in latitude (or departure) of any course is to the total error in latitude (or departure) as the latitude (or departure) of the course is to the arithmetical sum of the latitudes (or departures).

The correction in each case is applied so as to diminish the total error. For example, if the sum of the plus latitudes is greater than the sum of the minus latitudes, the corrections are subtracted from the plus latitudes and added to the minus latitudes. Similar corrections are applied to the departures.

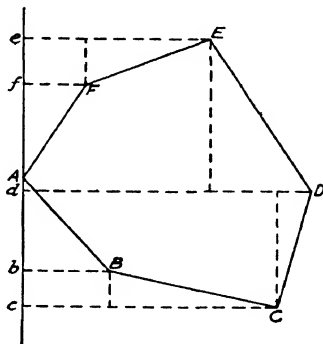
Expressed in the form of equations we have:

$$\text{Correction in latitude} = \left(\frac{\text{Total error in latitude}}{\text{Arithmetical sum of latitudes}} \right) (\text{Latitude of course})$$

$$\text{Correction in departure} = \left(\frac{\text{Total error in departure}}{\text{Arithmetical sum of departures}} \right) (\text{Departure of course})$$

It is to be noted that the fraction in each equation is, for any particular survey, a constant. These constants may be found and multiplied by the latitude or departure of the particular course to give the desired correction. Considerable time will thus be saved. In actual work, depending upon the accuracy desired, errors may be distributed by use of the slide rule with sufficient closeness, or even by inspection, but based on the two equations just given.

Determination of area by use of latitudes and departures. Let $ABCDEF$ represent a figure whose area is to be found. The bearings and lengths of all courses have been measured or computed. A meridian is passed through the most westerly point and perpendiculars are let fall from each vertex to this meridian. Other additional lines are drawn as shown in the figure.



Then the area

$$ABCDEF = cCDd + dDEe - cCBb - bBA - AFf - fFEe,$$

or

$$ABCDEF = \frac{1}{2} (cC + dD)cd + \frac{1}{2} (dD + eE)de - \frac{1}{2} (cC + bB)cb - \frac{1}{2} (bB) (bA) - \frac{1}{2} (fF) (fA) - \frac{1}{2} (fF + eE)fe$$

It may be noted that the quantities enclosed in the parentheses are the double meridian distances of the courses, and the distances by which these are multiplied,

are the latitudes of the corresponding courses. Inasmuch as the meridian is taken through the most westerly point, the quantities in parentheses are all positive, while the latitudes of the courses CD and DE are positive, and the latitudes of the other four courses are negative. The signs conform to the rule previously stated, viz.: latitudes of north courses are plus, and those of south courses are minus.

Both sides of the equation may be multiplied by two. We may then express the equation in the form of a rule:

The double area of a figure is equal to the algebraic sum of the products of the double meridian distances of the different courses and their corresponding latitudes.

If the figure is traversed counter clockwise, the resultant algebraic sum of the areas will be positive; if traversed clockwise, it will be negative. The numerical value only, of the area, is the result desired.

The double meridian distances of the courses may be found either by use of a sketch, which is recommended, or in the following way, which it is advised that the reader prove to his own satisfaction.

The double meridian distances of the two courses adjacent to the reference meridian are equal to their respective departures. The double meridian distance of any other course is equal to the double meridian distance of the preceding course, plus the departure of that course, plus the departure of the course itself; the usual attention being paid to the signs of the departures.

Remark. The plan above outlined of taking the meridian through the most westerly point and also the reference east and west line through the same point is that given in most text books on surveying. The east and west line may better be taken through the most southerly point of the survey. In this case when using "coördinates" as explained below, all coördinates will be measured to the right of the line eAc and above the line cC .

Coördinates. A point may be located by distances from two fixed reference lines. For instance in the figure, the point F may be located by the distances Af and fF which are at right angles to each other. Similarly the point E by the distances Ae and eE . The method of coördinates is quite generally employed in mining surveying, city surveying, and in the subdivision of tracts of land into lots. In such cases there is an advantage in having the east and west axis chosen to go through the most southerly point in the survey. Or, reference axes may be taken entirely without the area such as in the case here given to the left of the line eAc and below the line cC . Should this be done, corresponding proper changes should be made in the equation for area and in finding the double meridian distances by rule.

CURVES

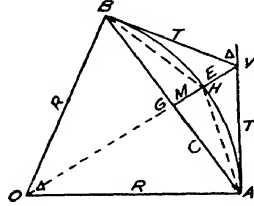
The *center line* of a railroad or highway is composed of a series of straight lines and curves. The straight lines are called "tangents." The curves may be simple, compound, reversed, or spiral.

Only some of the fundamentals of simple curves will be here given. For complete details both on simple curves and the other forms, the reader is referred to the various field books on highway and railroad work.

Simple Curves

A simple curve is a circular arc joining two tangents, and is always considered as limited by the two tangent points.

The parts of a curve are shown in the figure, and are:



R = the radius; T = the tangent distance (sometimes called the semi-tangent or sub-tangent); M = the middle ordinate; E = the external distance; C = the long chord; and Δ the exterior or deflection angle between the tangents as well as the central angle of the curve.

The beginning of curve is designated by P.C. (Point of Curve) the end by P.T. (Point of Tangency); the intersection of the two tangents is the Vertex, and is designated by P.I. (Point of Intersection).

The terms B.C. (Beginning of Curve) and E.C. (End of Curve) are used by some engineers. Also the terms T.C. (Tangent to Curve) and C.T. (Curve to Tangent) are recommended by the American Railway Engineering Association.

The following general formulas apply to simple curves both for railroad and highway work.

$$\begin{aligned} T &= R \tan \frac{1}{2} \Delta \\ M &= R \operatorname{vers} \frac{1}{2} \Delta \\ E &= R \operatorname{exsec} \frac{1}{2} \Delta \\ C &= 2 R \sin \frac{1}{2} \Delta \end{aligned}$$

Differences between highway and railroad practice. As will be explained later, where the term "Degree of Curve" is used it has different meanings in highway and railroad work. Also a highway curve is measured on the arc of the curve, while in railroad work the curve is measured by a series of chords.

Highway practice. Simple curves for highways are designated either by the radius or by the degree of curve. The **Degree of Curve for Highways** is designated as the **central angle subtended by an arc of 100 ft.**

Let D = the degree of curve, and R = the radius.

Then we have the proportion,

$$D : 360 :: 100 : 2 \pi R$$

or

$$D = \frac{100 (360^\circ)}{2 \pi R} = \frac{5729.58}{R}$$

and

$$R = \frac{5729.58}{D}$$

In words, the radius varies inversely with the degree of curve.

Where the degree of curve is given, the length is found from the equation

$$L = 100 \frac{\Delta}{D}.$$

When the radius is given, the length is usually found by use of the table entitled "Length of Arc for Radius Unity." For the method of use, the reader is referred to the explanation for Table 2.

Railroad practice. The equation connecting the radius and the degree of curve is $R = \frac{50}{\sin \frac{1}{2} D}$.

Table 5 gives values of the radii based on this equation.

Curves in railroad work are measured on chords. The length of curve is given by the formula, $L = 100 \frac{\Delta}{D}$.

USE OF TABLES

TABLE 1. SINES, COSINES, TANGENTS AND COTANGENTS

Theory. The explanation of the terms sine, cosine, tangent and cotangent are given elsewhere. Many of the computations of surveying are made by use of this table.

Example. Values of the various functions are given directly to 10'' and to single seconds or closer by use of the columns of proportional parts. A single illustration will suffice.

To find the latitude and departure of a course whose length is 468.67 and bearing 25° 52' 14''.

The sine of 25° 52' 14'' = 0.4363220 + 0.00001744 = 0.43633944.

The cosine of 25° 52' 14'' = 0.8997906 - 0.00000848 = 0.89978212.

Then the latitude = $468.67 \times 0.89978212 = 421.701$ and the departure = $468.67 \times 0.43633944 = 204.499$.

TABLE 2. LENGTH OF ARC TO RADIUS UNITY

Theory. Let r = radius of circular arc of length l , the central angle of which is a in degrees. Then

$$a^\circ : 360^\circ :: l : 2\pi r$$

or

$$a^\circ = \frac{l}{r} \frac{180^\circ}{\pi}$$

and

$$r = \frac{l}{a^\circ} \frac{180^\circ}{\pi} \quad \text{and} \quad l = \frac{\pi}{180^\circ} a^\circ r = .01745329 a^\circ r$$

The table gives the product of the constant .01745329 times the central angle in degrees. For any radius other than unity, the coefficient is multiplied by the radius.

Problem. To find the length of arc of a circle whose radius is 240.00 and for a central angle of 59° 40' 40''

Coefficient for 59° 40'	1.0413798
Coefficient for 40''	.0001939
Coefficient for 59° 40' 40''	1.0415737

Then the length of arc for radius 240.00 will be $240.00 \times (1.0415737) = 249.978$.

Note. In some offices where calculating machines are available, this table is not used, but the values of 1°, 1', and 1'' are kept in mind, and the proper coefficient is found by use of the calculating machine. This coefficient multiplied by the given radius will give the desired length of arc. The coefficients are given below to eight decimals, constituting material for an abridgment of the table and an example illustrating the use of the shorter table.

Coefficients for Finding Lengths of Circular Arcs

	Degrees	Minutes	Seconds
1	0.01745329	0.00029089	0.00000485
2	0.03490659	0.00058178	0.00000970
3	0.05235988	0.00087266	0.00001454
4	0.06981317	0.00116355	0.00001939
5	0.08726646	0.00145444	0.00002424
6	0.10471976	0.00174533	0.00002909
7	0.12217305	0.00203622	0.00003394
8	0.13962634	0.00232711	0.00003879
9	0.15707963	0.00261799	0.00004363

Example. To find the length of arc for a circle of radius 20 ft. and central angle of $18^{\circ} 24' 30''$.

Coefficient for $10^{\circ} = 0.1745329$

$8^{\circ} = .1396263$

$20' = .0058178$

$4' = .0011636$

$30'' = .0001454$

0.3212860 times 20 = 6.426

TABLE 3. CENTRAL ANGLES FOR ARCS OF EVEN FOOT RADII

Theory. This table is the reverse of Table 2. It is based on the following: Let α° = the central angle (in degrees) of an arc whose radius and length are R and l , respectively.

$$\text{Then } \alpha^{\circ} = 57.2957795^{\circ} \frac{l}{R}$$

If α' = the central angle in minutes

$$\alpha' = 60 (57.2957795) \frac{l}{R} = Kl$$

Certain values of the radius are assumed as shown in the table, the corresponding values of K are found.

Example. To find the central angle for an arc of 75 feet on a curve of 150 foot radius.

From the table, the coefficient K for a curve with 150 foot radius is 22.9183118. The central angle in minutes for a 75 foot arc will be $75 (22.9183118) = 1718.873385' = 28^{\circ} 38' 52.4''$.

Check. The example may be checked by use of Table 2. The coefficient for the angle $28^{\circ} 38' 52.4''$ will be 0.4999999, and this multiplied by 150 will give the length of arc as 75.000.

TABLE 4. RADII FROM ARC DEFINITION

Theory. The equation based on the arc definition for degree of curve is

$$R = \frac{5729.58}{D}$$

The radius of a 1° curve is 5729.58; that for a 2° curve is $\frac{1}{2}$ (5729.58) and so on. The use of the table will shorten calculations and will serve to check computations as made from the formula.

TABLE 5. RADII FROM CHORD DEFINITION

Theory. The equation based on the chord definition for degree of curve and that used in railroad work is

$$R = \frac{50}{\sin \frac{1}{2} D}$$

A comparison of the values in this table with those in Table 4 will naturally show slight differences in the radius for a particular degree of curve.

TABLE 6. CURVES WITH EVEN FOOT RADII

Description. Many highway commissions use only an even foot radius curve, and do not use the term degree of curve. In subdivision work the same fact is true.

This table gives a list of common values for radii. Probably engineers will wish to extend this table. Certain other information is given for staking out the curves, which includes a recommended length of arc; the deflection and chord for the particular arc; and the deflection for 1 foot of arc. An explanation of these matters is given under "Theory" below.

Theory. If d = the central angle for a certain arc of radius R , then

$$d = \frac{360^\circ}{2 \pi R} \text{ arc}$$

The deflection angle for any arc is one-half the central angle, or,

$$\frac{1}{2} d = \frac{360^\circ}{4 \pi R} \text{ arc} = \frac{1718.8 \text{ times the arc}}{R} \text{ expressed in minutes}$$

Table 6 gives the deflection angle for 1 foot of arc, a recommended length of arc and the deflection angle and chord for that particular arc. This table will be found of special use in the field.

TABLE 7. FUNCTIONS OF A 1° CURVE

Description. The table contains the exact values of the tangents, T , the externals, E , and the long chords, C , for a 1° curve for every 10' of central angle from 1° up to 121°. Values for other degrees may be had by simply dividing the tabular values opposite the given central angle by the given degree of curve, expressed in degrees. These values are exact where the *arc definition* for degree of curve is used. But where the *chord definition* is used, corrections must be applied to find the exact values of T and E for which see Tables 8 and 9.

Theory. The values in this table are found from the formulas $T = R \tan \frac{1}{2} \Delta$; $E = R \text{ exsec } \frac{1}{2} \Delta$; and $C = 2 R \sin \frac{1}{2} \Delta$, where the value of R is that for a 1° curve. As noted in the previous section, where the arc definition for degree of curve is used, to find the proper quantities for any other degree of curve simply divide the amount opposite the particular arc by the degree of curve, but where the chord definition is used, corrections must be applied to the various quantities. Those for T are given in Table 8 and those for E are in Table 9. A special correction table for C is not given, and in case the chord definition for degree of curve is employed, the formula should be used with the correct value of R as found in Table 5.

Example. To find the tangent distance, external distance and long chord of a 10° curve, where $\Delta = 20^\circ 0'$.

First for highway work. The quantities for a 1° curve are 1010.3, 88.39 and 1989.9 respectively. For a 10° curve they are one-tenth of these amounts, viz. 101.03, 8.839 and 198.99.

Second for railroad work. Correct the value of T which was 101.03 by adding .13 which gives 101.16. Correct the value of E by the amount .003 which gives 8.842. The value of C is found from the formula $C = 2 R \sin \frac{1}{2} \Delta$, the value of R being taken from Table 5.

TABLE 8. CORRECTIONS FOR TANGENT DISTANCES

After Dividing T (Table 7) by D , Add Quantity from Table

Theory. The chord definition of degree of curve is used in railroad work and in such case the tangent distance, $T = R \tan \frac{1}{2} \Delta$, or T varies with R . Again $R = \frac{50}{\sin \frac{1}{2} D}$, or the radius varies inversely with the $\sin \frac{1}{2} D$, and not inversely with D . The net result is that in this case a small correction must be applied to the approximate value of T as obtained from Table 7 to obtain the exact value.

Example. A numerical example in the use of this table is given under the outline for Table 7.

TABLE 9. CORRECTIONS FOR EXTERNAL DISTANCES

After Dividing E (Table 7) by D , Add the Quantity Found in This Table

Theory. By reasoning similar to that given in the explanation of Table 8 a correction must be applied to the approximate value of E as obtained from Table 7 to secure the exact value of E .

Example. A numerical example in the use of this table is given under the outline for Table 7.

TABLE 10. TRIGONOMETRIC FUNCTIONS, FORMULAS AND SOLUTION OF TRIANGLES

No special explanation need be given for this table. The following items are included:

- a. Explanation of the trigonometric functions.
- b. Signs of the functions of angles in the different quadrants.
- c. Equations for the solution of right triangles.
- d. Equations for the solution of oblique triangles, both by general formulas and by separating the oblique triangle into right triangles.
- e. Three tables on the functions of angles.

TABLE 11. MINUTES IN DECIMALS OF A DEGREE

This table contains the values of minutes and seconds, expressed in decimals of a degree, for every $10''$ of arc, and also for quarter minutes up to 1.

TABLE 12. UNITS OF LENGTH AND OF SQUARE MEASURE

Sufficient information is here given to reduce one unit of length or area to another, both for English units and for Metric.

